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PATENT ABSTRACTS OF JAPAN

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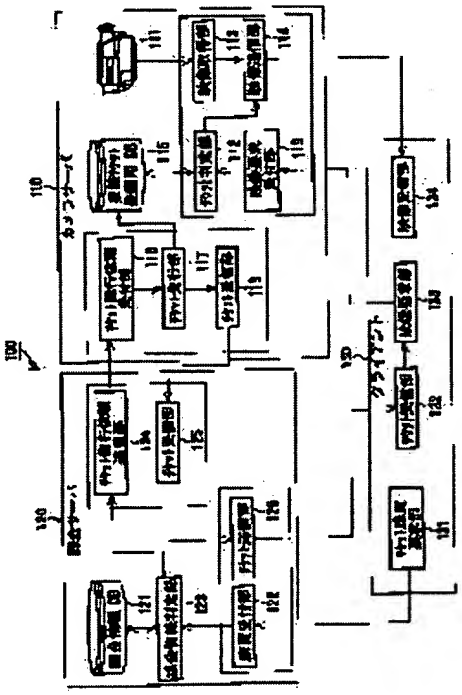
(54) CHARGE ACCOUNTING DEVICE, INFORMATION TRANSMISSION SYSTEM, CHARGE ACCOUNTING METHOD AND STORAGE MEDIUM

(57)Abstract:

PROBLEM TO BE SOLVED: To attain the effective and safe supply of service to a client even though the service object information is equal to the stream type data by issuing a ticket based on the payment information on the client and sending the ticket to the client via a charge accounting server.

SOLUTION: A client 130 gives a request to a charge accounting server 120 to purchase a ticket. If the settlement information on the request given from the client 130 is right, the server 120 gives a ticket issue request to a camera server 110. Thus, the server 110 issues a ticket to register it in a connecting ticket register DB 115 and also to return it to the server 120. The server 120 sends the returned ticket to the client 130 as a connecting ticket. The client 130 gives a video service request (connection request) to the server 110 by means of the connecting ticket.



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CLAIMS

[Claim(s)]
[Claim 1] A storage means to be accounting equipment charged to the service with which the server provided this client based on the service request from a client, and to memorize the predetermined information about the above-mentioned client, A purchasing demand reception means to receive the purchasing demand of the ticket used in case a service request is transmitted to the above-mentioned server from the above-mentioned client, A judgment means to judge the justification of the demand received with the above-mentioned purchasing demand reception means based on the information on the above-mentioned storage means, A ticket demand means to require issuance of the above-mentioned ticket of the above-mentioned server based on the judgment result in the above-mentioned judgment means, An accounting means to perform accounting to the service which the above-mentioned client receives based on the judgment result in the above-mentioned judgment means, Accounting equipment characterized by having a transmitting means to transmit the ticket returned by the demand with the above-mentioned ticket demand means from the above-mentioned server to the above-mentioned client.
[Claim 2] The above-mentioned service is accounting equipment according to claim 1 characterized by the thing of the right of photography motion control at the time of acquiring the speech information acquired in the above-mentioned server, image information, and this image included for any they are at least.
[Claim 3] The information on the above-mentioned ticket is accounting equipment according to claim 1 characterized by the thing of the information for identifying the above-mentioned client generated in the above-mentioned server, a hour entry with the above-mentioned client able to receive service from the above-mentioned server, and the electronic signature information generated in the above-mentioned server included for any they are at least.
[Claim 4] The information on the above-mentioned ticket is accounting equipment according to claim 1 characterized by being the information enciphered with the predetermined cipher system in the above-mentioned server.
[Claim 5] It is the information transmission system characterized by for the service provision server which transmits the information corresponding to the service demanded from the client of arbitration to this client, and the accounting server which are charged to the service with which the above-mentioned client was provided to be the information transmission systems which it comes to connect on the same network with the above-mentioned client, and for the above-mentioned accounting server to have the function of accounting equipment given in any of claims 1-4 they are.
[Claim 6] The service provision server which transmits the information corresponding to the service demanded from the client of arbitration to this client, The accounting server which the above-mentioned client charges from the above-mentioned service provision server to carrier beam service It is the information transmission system which it comes to connect on the same network with the above-mentioned client. The above-mentioned client A means to transmit the purchasing demand of the ticket used in case a service request is transmitted to the above-mentioned service provision server to the above-mentioned accounting server, A means to transmit a service request to the above-mentioned service provision server using the ticket returned by this ticket purchasing demand from the above-mentioned accounting server is included. The above-mentioned accounting server A means to memorize the information about the above-mentioned client, and a means to judge the justification of the ticket purchasing demand from the above-mentioned client based on this storage information, A means to transmit the issuance demand of a ticket to the above-mentioned service provision server based on this judgment result, A means to perform settlement-of-accounts processing to the service which the above-mentioned client receives based on the above-mentioned judgment result, A means to transmit the ticket returned by the above-mentioned ticket issuance demand from the above-mentioned service provision server to the above-mentioned client is included. The above-mentioned service provision server A means to generate a ticket based on the ticket issuance demand from the above-mentioned accounting

server, A means to memorize the information on this ticket, and a means to transmit this ticket to the above-mentioned accounting server, The information transmission system characterized by including a means to receive the service request from the above-mentioned client, a means to judge the justification of the above-mentioned service request from the above-mentioned storage information, and a means to transmit the information based on the above-mentioned service request to the above-mentioned client based on this judgment result.

[Claim 7] The above-mentioned service is an information transmission system according to claim 6 characterized by including at least any they are and the above-mentioned service provision server including a means to judge whether the client of the above-mentioned service request origin has the access of the right of photography motion control at the time of acquiring speech information, image information, and this image which receives the above-mentioned service.

[Claim 8] A means to generate the above-mentioned ticket in the above-mentioned service provision server is an information transmission system according to claim 6 characterized by generating the ticket of a hour entry with the information and the above-mentioned client able to receive service for identifying the above-mentioned client which includes which information at least.

[Claim 9] A means for a means to generate the above-mentioned ticket to generate a ticket with a predetermined cipher system in the above-mentioned service provision server, and for a means to receive the above-mentioned service request to decrypt the above-mentioned ticket used for this service request, and to judge the justification of the above-mentioned service request is an information transmission system according to claim 6 characterized by performing the judgment with the ticket by which the decryption was carried out [above-mentioned].

[Claim 10] A means for a means to generate the above-mentioned ticket to generate a ticket including predetermined electronic signature in the above-mentioned service provision server, and to judge the justification of the above-mentioned service request is an information transmission system according to claim 6 characterized by performing the judgment by the electronic signature in the above-mentioned ticket used for the above-mentioned service request.

[Claim 11] Because a client transmits a service request to a service provision server Accounting to the service which a client receives from a service provision server The step which transmits the purchasing demand of the ticket which is the accounting approach for carrying out in an accounting server, and it uses in case the above-mentioned client transmits a service request to the above-mentioned service provision server to the above-mentioned accounting server, The above-mentioned accounting server is based on the information about the above-mentioned client memorized beforehand. While judging the justification of the ticket purchasing demand from the above-mentioned client and transmitting the issuance demand of a ticket to the above-mentioned service provision server based on this judgment result While the above-mentioned service provision server generates a ticket and remembers the information on this ticket to be the step which performs settlement-of-accounts processing to the service which the above-mentioned client receives based on the ticket issuance demand from the above-mentioned accounting server The step which transmits this ticket to the above-mentioned accounting server, and the above-mentioned accounting server by the above-mentioned ticket issuance demand The step which transmits the ticket returned from the above-mentioned service provision server to the above-mentioned client, and the above-mentioned client by the above-mentioned ticket purchasing demand The step which transmits a service request to the above-mentioned service provision server using the ticket returned from the above-mentioned accounting server, The above-mentioned service provision server receives the service request from the above-mentioned client. **, The accounting approach characterized by including the step which judges the justification of the above-mentioned service request from the storage information on the above-mentioned ticket, and transmits the information based on the above-mentioned service request to the above-mentioned client based on this judgment result.

[Claim 12] The above-mentioned service is the accounting approach according to claim 11 characterized by including at least any they are and including the step which judges whether the above-mentioned service provision server has the access of the right of photography motion control at the time of acquiring speech information, image information, and this image in which the client of the above-

mentioned service request origin receives the above-mentioned service.
[Claim 13] The accounting approach according to claim 11 characterized by including the step of a hour entry with information and the above-mentioned client able to receive service for the above-mentioned service provision server to identify the above-mentioned client for the above-mentioned ticket generated including which information at least.
[Claim 14] The accounting approach according to claim 11 characterized by including the step which decrypts the above-mentioned ticket used for this service request, and performs justification of this service request with the ticket by which the decryption was carried out [above-mentioned] when the above-mentioned service provision server generates the above-mentioned ticket and receives the service request from the above-mentioned client with a predetermined cipher system.
[Claim 15] The accounting approach according to claim 11 characterized by including the step which performs justification of the above-mentioned ticket used for this service request by the electronic signature in the above-mentioned ticket when the above-mentioned service provision server generates the above-mentioned ticket including predetermined electronic signature and receives the service request from the above-mentioned client.
[Claim 16] The storage characterized by storing the accounting approach given in any of claims 11-15 they are possible [read-out of a computer].

[Detailed Description of the Invention]
[0001]
[Field of the Invention] In case this invention offers service of stream information, such as an image and voice, to a client side through a network, it relates to the technique for charging to the service from which this client side receives.
[0002]
[Description of the Prior Art] The information transmission system which offers service of media data, such as an image and voice, through networks, such as the Internet, to two or more client sides connected on the network conventionally is developed. Specifically, "RealAudio", "RealVideo", "VDOLive", etc. are mentioned. Moreover, as a system which can perform camera actuation, such as a zoom and a pantilt, from a client side, "WebView" of Canon, Inc. etc. is mentioned to the image pick-up equipment on a network.
[0003] By the way, in the above information transmission systems, when charging to digital contents, such as an image transmitted to a client side with a service request, and a still picture, MIDI data, it is common that the following accounting approaches are used. First, payment systems, such as a credit card number, are beforehand notified to the side (henceforth a "contents server side") which offers service from the client side. And a contents server side gives ********** advice of the confidential information, such as a user name and a password, after checking the payment system of a client side. Thereby, a client side becomes possible [receiving digital contents].
[0004] However, by the above-mentioned accounting approach, since there was time and effort which a client side must notify that information with a private credit card number etc. is to a contents server side and to which a client side must carry out user registration as it is uneasy, there was a problem of being hard to spread. Moreover, it was difficult for there to be a problem that it cannot perform bank pulling down if it does not become a certain amount of [when performing small sum settlement of accounts] amount of money since a commission starts that the contents server side which is the side which offers service performs bank pulling down and credit settlement of accounts, and a problem that it can be hard to cleave a labor cost in order to check settlement of a small sum, therefore to perform small sum settlement of accounts on-line.
[0005] Then, in order to solve the above problems, in recent years, the accounting system and cybermoney method which enable the small sum settlement of accounts which held anonymity and was automated have appeared. When a contents server side offers small sum service by this, it is expected that the technique of building the information transmission system using the accounting system (henceforth an "accounting server") which executes a settlement service by proxy becomes in use, without performing a settlement service by the contents server side. As an accounting system with these descriptions, "BitCash" of a BitCash company, "CyberCash" in CyberCash woods, "CyberCoin", etc. are mentioned.
[0006]
[Problem(s) to be Solved by the Invention] However, although a client side may be able to be attested by the accounting server side with the information transmission system using the conventional accounting servers, such as "BitCash", since the information on a client side was not transmitted, it was difficult [it] for the contents server side which is the side which offers service in many cases to attest a client side by the contents server side. For this reason, in the contents server side, security countermeasures needed to be made severe.
[0007] moreover, as data currently actually dealt with by the above-mentioned conventional accounting server Although there is much are recording mold data with comparatively small data, such as a static image and download of software, and it is common to transmit these data to a client side through an accounting server when service of such data is required from a client side When the data set as the object of service are stream mold data, such as an image, and data transmission which went via the accounting server is performed, there is a problem that the network-load of an accounting server is large.

[0008] then , this invention be accomplished in order to remove the above-mentioned fault , and even if the information for service be stream mold data , it aim at offer the storage which stored the processing step for carry out the accounting equipment which can carry out offer of the service to a client side to insurance efficiently , an information transmission system , the accounting approach , and it possible [read-out of a computer] .

[0009]

[Means for Solving the Problem] If a client pays a countervalue to the bottom of this object for example, by the accounting server by this invention, the information is transmitted to a service provision server (contents servers, such as a camera server which offers the image acquired with image pick-up equipment, and voice) from an accounting server, based on the information, by the contents server side, a ticket (ticket for connection) will be published and KURAIANTOHE transmission will be carried out through an accounting server. A client connects with a service provision server with this ticket for connection. Thereby, the service (information, such as an image and voice) which the client required does not go via an accounting server. Moreover, by embedding the password for identifying the hour entries (time amount which can view and listen to an image or voice) which can connect a client, a ticket number, and a client etc. to the ticket for connection, where the anonymity of a client is maintained, client authentication can be performed.

[0010] Namely, a storage means for the 1st invention to be accounting equipment charged to the service with which the server provided this client based on the service request from a client, and to memorize the predetermined information about the above-mentioned client, A purchasing demand reception means to receive the purchasing demand of the ticket used in case a service request is transmitted to the above-mentioned server from the above-mentioned client, A judgment means to judge the justification of the demand received with the above-mentioned purchasing demand reception means based on the information on the above-mentioned storage means, A ticket demand means to require issuance of the above-mentioned ticket of the above-mentioned server based on the judgment result in the above-mentioned judgment means, It is characterized by having an accounting means to perform accounting to the service which the above-mentioned client receives, and a transmitting means to transmit the ticket returned by the demand with the above-mentioned ticket demand means from the above-mentioned server to the above-mentioned client, based on the judgment result in the above-mentioned judgment means.

[0011] 2nd invention is characterized by the thing of the right of photography motion control at the time of acquiring the speech information and image information that the above-mentioned service was acquired in the above-mentioned server, and this image included for any they are at least in the 1st above-mentioned invention.

[0012] 3rd invention is characterized by the thing of the information for identifying the above-mentioned client generated in the above-mentioned server, a hour entry with the above-mentioned client able to receive service from the above-mentioned server, and the electronic signature information generated in the above-mentioned server included for any they are at least in the 1st above-mentioned invention by the information on the above-mentioned ticket.

[0013] 4th invention is characterized by the information on the above-mentioned ticket being the information enciphered with the predetermined cipher system in the above-mentioned server in the 1st above-mentioned invention.

[0014] The 5th invention is the information transmission system which comes to connect the service provision server which transmits the information corresponding to the service demanded from the client of arbitration to this client, and the accounting server charged to the service with which the above-mentioned client was provided on the same network with the above-mentioned client, and it carries out that the above-mentioned accounting server has the function of accounting equipment given in any of claims 1-4 they are as the description.

[0015] The service provision server which transmits the information corresponding to the service as which the 6th invention was required from the client of arbitration to this client, The accounting server

which the above-mentioned client charges from the above-mentioned service provision server to carrier beam service It is the information transmission system which it comes to connect on the same network with the above-mentioned client. The above-mentioned client A means to transmit the purchasing demand of the ticket used in case a service request is transmitted to the above-mentioned service provision server to the above-mentioned accounting server, A means to transmit a service request to the above-mentioned service provision server using the ticket returned by this ticket purchasing demand from the above-mentioned accounting server is included. The above-mentioned accounting server A means to memorize the information about the above-mentioned client, and a means to judge the justification of the ticket purchasing demand from the above-mentioned client based on this storage information, A means to transmit the issuance demand of a ticket to the above-mentioned service provision server based on this judgment result, A means to perform settlement-of-accounts processing to the service which the above-mentioned client receives based on the above-mentioned judgment result, A means to transmit the ticket returned by the above-mentioned ticket issuance demand from the above-mentioned service provision server to the above-mentioned client is included. The above-mentioned service provision server A means to generate a ticket based on the ticket issuance demand from the above-mentioned accounting server, A means to memorize the information on this ticket, and a means to transmit this ticket to the above-mentioned accounting server, It is characterized by including a means to receive the service request from the above-mentioned client, a means to judge the justification of the above-mentioned service request from the above-mentioned storage information, and a means to transmit the information based on the above-mentioned service request to the above-mentioned client based on this judgment result.

[0016] 7th invention is characterized by the above-mentioned service including a means by which it is included at least any they are and the above-mentioned service provision server judges whether it has the access of the right of photography motion control at the time of acquiring speech information, image information, and this image in which the client of the above-mentioned service request origin receives the above-mentioned service in the 6th above-mentioned invention.

[0017] A means by which the 8th invention generates the above-mentioned ticket in the above-mentioned service provision server in the 6th above-mentioned invention is characterized by generating the ticket of a hour entry with the information and the above-mentioned client able to receive service for identifying the above-mentioned client which includes which information at least.

[0018] A means for a means by which the 9th invention generates the above-mentioned ticket in the above-mentioned service provision server in the 6th above-mentioned invention to generate a ticket with a predetermined cipher system, and for a means to receive the above-mentioned service request to decrypt the above-mentioned ticket used for this service request, and to judge the justification of the above-mentioned service request carries out performing the judgment with the ticket by which the decryption was carried out [above-mentioned] as the description.

[0019] A means for a means by which the 10th invention generates the above-mentioned ticket in the above-mentioned service provision server in the 6th above-mentioned invention to generate a ticket including predetermined electronic signature, and to judge the justification of the above-mentioned service request is characterized by performing the judgment by the electronic signature in the above-mentioned ticket used for the above-mentioned service request.

[0020] The 11th invention is that a client transmits a service request to a service provision server. Accounting to the service which a client receives from a service provision server The step which transmits the purchasing demand of the ticket which is the accounting approach for carrying out in an accounting server, and it uses in case the above-mentioned client transmits a service request to the above-mentioned service provision server to the above-mentioned accounting server, The above-mentioned accounting server is based on the information about the above-mentioned client memorized beforehand. While judging the justification of the ticket purchasing demand from the above-mentioned client and transmitting the issuance demand of a ticket to the above-mentioned service provision server based on this judgment result While the above-mentioned service provision server generates a ticket and remembers the information on this ticket to be the step which performs settlement-of-accounts

processing to the service which the above-mentioned client receives based on the ticket issuance demand from the above-mentioned accounting server The step which transmits this ticket to the above-mentioned accounting server, and the above-mentioned accounting server by the above-mentioned ticket issuance demand The step which transmits the ticket returned from the above-mentioned service provision server to the above-mentioned client, and the above-mentioned client by the above-mentioned ticket purchasing demand The step which transmits a service request to the above-mentioned service provision server using the ticket returned from the above-mentioned accounting server, The above-mentioned service provision server receives the service request from the above-mentioned client. **, The justification of the above-mentioned service request is judged from the storage information on the above-mentioned ticket, and it is characterized by including the step which transmits the information based on the above-mentioned service request to the above-mentioned client based on this judgment result.

[0021] 12th invention is characterized by including at least any they are and the above-mentioned service containing the step which judges whether the above-mentioned service provision server has the access of the right of photography motion control at the time of acquiring speech information, image information, and this image in which the client of the above-mentioned service request origin receives the above-mentioned service in the 11th above-mentioned invention.

[0022] 13th invention is characterized by including the step of a hour entry with information and the above-mentioned client able to receive service for the above-mentioned service provision server to identify the above-mentioned client for the above-mentioned ticket generated including which information at least in the 11th above-mentioned invention.

[0023] In the 11th above-mentioned invention, when the above-mentioned service provision server generates the above-mentioned ticket and receives the service request from the above-mentioned client with a predetermined cipher system, the 14th invention decrypts the above-mentioned ticket used for this service request, and is characterized by including the step which performs justification of this service request with the ticket by which the decryption was carried out [above-mentioned].

[0024] In the 11th above-mentioned invention, 15th invention is characterized by including the step which performs justification of the above-mentioned ticket used for this service request by the electronic signature in the above-mentioned ticket, when the above-mentioned service provision server generates the above-mentioned ticket including predetermined electronic signature and receives the service request from the above-mentioned client.

[0025] 16th invention is characterized by being the storage which stored the accounting approach given in any of claims 11-15 they are possible [read-out of a computer].

[0026]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained using a drawing.

[0027] (Gestalt of the 1st operation) This invention is applied to the information transmission system 100 as shown in drawing 1 . This information transmission system 100 is a system only with the client side able to receive service of an image which paid the tariff, and as shown in above-mentioned drawing 1 , it connects on computer networks, such as the Internet, respectively, and the camera server 110 which offers service of an image, the client 130 which requires service of an image, and the accounting server 120 which performs accounting to the service which the client 130 required are constituted so that two-way communication may be possible. In addition, although each shows one camera server 110 and a client 130 by above-mentioned drawing 1 since explanation is easy, it is good also as that in which two or more each exists.

[0028] The camera server 110 acquires the image based on the service request of the image from a client 130, and transmits the image to a client 130 while it publishes the ticket based on the ticket issuance demand from the accounting server 120 mentioned later. For this reason, the camera equipment 111 which digitizes the image information which the camera server 110 photoed the photographic subject and was acquired, The image acquisition section 113 which acquires the image information acquired with camera equipment 111, The image transmitting section 114 which transmits the image information

acquired in the image acquisition section 113 to a client 130 through a network, the database for the connection ticket registration for accumulating the information on the published ticket (DB) -- 115 -- While publishing a ticket based on the ticket issuance request received in the ticket issuance request reception section 116 which receives the ticket issuance request transmitted from the accounting server 120, and the ticket issuance request reception section 116 The ticket issuance section 117 which accumulates the ticket information in DB115 for connection ticket registration (registration), The ticket transmitting section 118 which transmits the ticket published in the ticket issuance section 117 to the accounting server 120, The image demand reception section 119 which receives the service request of an image using the ticket for connection later mentioned from a client 130, It comes to contain the ticket judging section 112 which checks the service request received in the image demand reception section 119 based on the ticket information on DB115 for connection ticket registration. In addition, camera equipment 111 may be one apparatus camera equipment which contained the device in which the image information photoed and acquired was digitized, and may be equipped with the device in which the above digitizes, with the gestalt of another board.

[0029] The accounting server 120 transmits the information based on it to the camera server 110 by the ticket purchasing demand from a client 130, and transmits to a client 130 by using as the ticket for connection the ticket answered from the camera server 110. for this reason -- accounting -- a server -- 120 -- accounting -- ** -- confidential information -- etc. -- accumulating -- a sake -- a database -- (-- DB --) -- 121 -- a client -- 130 -- from -- a ticket -- purchasing -- a demand (although mentioned later for details) The purchasing reception section 122 which receives the demand including information, such as goods to buy, the content of service, and accounting information, The accounting information judging section 123 which judges the justification of the purchasing demand received in the purchasing reception section 122 based on the information on accounting information DB121, The ticket issuance request transmitting section 124 which requires the issuance request of camera server 110 HECHIKETTO based on the judgment result of the accounting information judging section 123, It comes to contain the ticket receive section 125 which receives the ticket published by the camera server 110, and the ticket transmitting section 126 which transmits to a client 130 by using as the ticket for connection the ticket received in the ticket receive section 125.

[0030] A client 130 comes to contain the ticket purchase demand section 131 which requires the purchase of a ticket of the accounting server 120, the ticket receive section 132 which receives the ticket for connection from the accounting server 120, the image demand section 133 which carries out the camera server 110 HE demand of the service of an image using the ticket for connection received in the ticket receive section 132, and the image receive section 134 which does a screen display etc. while receiving the image from the camera server 110.

[0031] Actuation of the above whole image transmission system 100 turns into actuation according to the flow chart shown in drawing 2 .

[0032] Step S201: A client 130 performs the purchasing demand (demand for viewing and listening of the image acquired by the camera server 110) of a ticket to the accounting server 120. The accounting information (henceforth "settlement-of-accounts information") mentioned later, the information on the image for which it wishes (camera Server Name, image stream name, etc.), the information on a connect time with that camera server for which it wishes are included in the demand information at this time.

[0033] Step S202: The accounting server 120 requires ticket issuance from the camera server 110, when the settlement-of-accounts information on the demand from a client 130 is just.

[0034] Step S203: Return the camera server 110 to the accounting server 120 while it publishes a ticket and registers it to DB115 for connection ticket registration by the demand from the accounting server 120. The accounting server 120 transmits to a client 130 by using as the ticket for connection the ticket returned from the camera server 110.

[0035] Step S204: A client 130 requires service of the image over the camera server 110 using the ticket for connection from the accounting server 120 (connection request).

[0036] Step S205: By the demand from a client 130, the camera server 110 checks the content of the ticket for connection used for it from the content of the ticket previously registered to DB115 for

connection ticket registration, when it is a right demand, acquires the image according to the demand, and transmits it to a client 130.
[0037] Step S206: Receive the image from the camera server 110 and, as for a client 130, a screen display etc. carries out it.
[0038] Here, drawing 3 shows the actuation at the time of paying one's attention to a client 130, drawing 4 shows the actuation at the time of paying one's attention to the accounting server 120, and drawing 5 (a) and (b) show the actuation at the time of paying one's attention to the camera server 110. Hereafter, each actuation is explained concretely.
[0039] (1) Processing in a client 130 (refer to above-mentioned drawing 3)
Step S301: The ticket purchasing demand section 131 requires ticket purchasing from the accounting server 120 (viewing-and-listening demand). Settlement-of-accounts information, camera Server Name and an image stream name, and a connect time are contained in this demand. Here, settlement-of-accounts information is cybermoney, the card information on a prepaid card method, etc., and points out the information (a code, password, etc.) specified by the site which performs online small sum settlement of accounts. It is information as specifically shown in drawing 6 .
Step S302: A client 130 goes into a ticket receiving waiting state after the demand of ticket purchasing from the accounting server 120 in the ticket receive section 132 in step S301.
Step S303 - step S305: If the ticket receive section 132 receives the ticket for connection from the accounting server 120 (step S303), the image demand section 133 will require service of an image from the camera server 110 using the information on the ticket for connection (step S304). Then, a client 130 goes into the receiving waiting state of the image from the camera server 110 in the image receive section 134. Step S306: If the image from the camera server 110 is received, as for the image receive section 134, a screen display etc. will carry out it.
[0040] (2) Processing in the accounting server 120 (refer to above-mentioned drawing 4)
Step S401: The purchasing reception section 122 receives the ticket purchasing demand (above-mentioned drawing 3 : step S301 reference) from a client 130.
Step S402: The accounting information judging section 123 checks the settlement-of-accounts information (accounting information) included in the demand received in the purchasing reception section 122 using the information accumulated in accounting information DB121.
Step S403: and the accounting information judging section 123 distinguish whether the demand from a client 130 is just in step S402 as a result of a check. As a result of this distinction, only when it is a right demand, it progresses to processing from the following step S404, and when that is not right, this demand is disregarded.
Step S404 - step S406: A right case, the accounting information judging section 123 performs settlement-of-accounts processing actually (step S404), and the demand (settlement-of-accounts information) from a client 130 requires issuance of a ticket from the camera server 110 (step S405). Information, such as camera Server Name included in a demand from a client 130, an image stream name, and a connect time, is also included in this demand. Then, the accounting server 120 goes into a ticket receiving waiting state from the camera server 110 in the ticket receive section 125 (step S406).
Step S407: If the ticket receive section 125 receives the ticket from the camera server 110, the ticket transmitting section 126 will transmit to a client 130 by using the ticket as the ticket for connection.
[0041] (3-1) Ticket issuance processing in the camera server 110 (refer to above-mentioned drawing 5 (a))
Step S501: The ticket issuance request section 116 receives the demand (above-mentioned drawing 4 : step S405 reference) of the ticket issuance from the accounting server 120.
Step S502: Based on the demand received in the ticket issuance request section 116, the ticket issuance section 117 publishes a ticket and registers it to DB115 for connection ticket registration. While camera Server Name included in the demand of the ticket issuance from the accounting server 120 as information on this ticket, an image stream name, a connect time, etc. are included, confidential information, such as a ticket number, ticket issuance time amount, and a password, is also included. It considers as information as specifically shown in drawing 7 .

Step S503: The ticket transmitting section 118 transmits to the accounting server 120 by using as the ticket for connection the ticket published in the ticket issuance section 117.
[0042] (3-2) Image offer processing in the camera server 110 (refer to above-mentioned drawing 5 (b))
Step S504: The image demand reception section 119 receives the service request (above-mentioned drawing 3 : step S304 reference) of the image from a client 130.
Step S505: Perform the ticket judging section 112 by referring to the information registered into DB115 for connection ticket registration in the judgment of the justification of the items mentioned of the ticket for connection currently used for the demand received in the image demand reception section 119. As a matter which judges here, camera Server Name and an image stream name, and the present time of day consider as the matter about whether a ticket number and a password are right whether it is the connectable inside of time amount, for example.
Step S506: When the ticket for connection in step S505 used for the above-mentioned demand as a result of the judgment is just, processing of the following step S507 is performed, and this demand is disregarded when that is not right.
Step S507: When the demand from a client 130 is just, the image transmitting section 114 transmits the image acquired in the image acquisition section 113 to a client 130.
[0043] In addition, the camera server 110 is made as [perform / processing which consisted of two threads of the thread (processing of above-mentioned drawing 5 (a)) which repeats and processes steps S501-S503, and the thread (processing of above-mentioned drawing 5 (b)) which repeats and processes steps S504-S507], and these are made as [carry out / mediating DB115 for connection ticket registration / coordination actuation].
[0044] As mentioned above, the camera server 110 published the ticket for connection for receiving service, and the client 130 carried out the service request of the download of an image etc. to the camera server 110 using the ticket for connection, and when the camera server 110 offered this service to the client 130 with a service request, it constituted from a gestalt of this operation so that it might charge by the accounting server 130 to service of the ticket for connection. It can charge to the service which a client 130 receives, without covering a network-load over the accounting server 130 by this, without minding the accounting server 130 for these data, even if the data for service are stream information like an image stream. Moreover, it can charge, without the camera server 110 getting to know information with the private card number of a client 130 etc. independently [the accounting server 130] having an authentication device by the camera server 110 (offer side of service), i.e., by having constituted so that the ticket for connection might be published by the camera server 110 and the authentication information might be managed by the camera server 110. This not only can maintain the anonymity of a client 130 to the camera server 110, but can save the time and effort which makes security countermeasures severe also for the camera server 110, and the advantage in which employment becomes very easy also exists.
[0045] In addition, although considered as the configuration which forms the original accounting server 120 with the gestalt of above-mentioned operation, the existing accounting infrastructures ("BitCash" in BitCash woods, "CyberCash" of CyberCash, Inc., "CyberCoin", etc.) which have an equivalent function, for example may be substituted for the accounting server 120.
[0046] Moreover, it is also possible to raise security level further because it is made to encipher SSL etc. by the communication link between the camera server 110, a client 130, and the accounting server 120.
[0047] Moreover, although the password was written in this ticket when publishing a ticket by the camera server 110 (above-mentioned drawing 5 (a): step S502 reference), the one-time password which the password of immobilization is sufficient as and is created for every connection as this password, for example is sufficient. In the case of a one-time password, password creation processing is added during processing at the above-mentioned step S502. When the level of security is not called for so much, you may make it not use a password on the other hand.
[0048] Moreover, in case a ticket is published by the camera server 110 (above-mentioned drawing 5 (a): step S502 reference), you may make it add the electronic signature of the ticket itself to this ticket. Since existence of the alteration by those who received the client 130 of a transmission place and other

tickets unjustly can be checked by this, it becomes possible to raise safety more. In this case, during processing of the above-mentioned step S502, while adding the processing which creates electronic signature, and the processing which writes electronic signature in a ticket, the electronic signature check processing in a ticket is added during processing of step S505 of above-mentioned drawing 5 (b).
[0049] Moreover, in case a ticket issuance demand request is performed by the accounting server 120 (above-mentioned drawing 4 : step S405 reference), you may make it add electronic signature to the data itself. This becomes possible prevention of the unjust ticket issuance request demand by the third party, and to prevent an alteration, and it becomes possible to raise more the security between the accounting server 120 and the KAMERA server 110. In this case, the public keys (public key of an unsymmetrical key cipher system etc.) of the accounting server 120 are beforehand generated to the accounting server 120 side, and that public key is registered into the camera server 110. Moreover, while adding the processing which creates and transmits electronic signature during processing of the above-mentioned step S405, the processing which checks electronic signature during processing of step S501 of above-mentioned drawing 5 (a) is added.
[0050] (Gestalt of the 2nd operation) With the gestalt of this operation, in the information transmission system 100 of above-mentioned drawing 1 , service of an image receiving right, a voice receiving right, the right of camera control, etc. is also offered, and it charges to this.
[0051] For example, an information transmission system 100 has the function in which the actuation of the zoom of camera server 110 HE ****** and camera equipment 111, a pan, a tilt, etc. of a camera-control command is attained from a client 130, and the function to incorporate voice, like "WebView" of Canon, Inc. Moreover, it is referred to as three, an image receiving right, a voice receiving right, and the right of camera control, as service which the camera server 110 offers.
[0052] When the above information transmission systems 100 are systems with two or more contents of service, or functions, different attribute value for every these service and function is given to the ticket for connection. Specifically, "B" and attribute value at the time of choosing all image receiving rights, the voice receiving rights, and rights of camera control are set [the attribute value at the time of choosing an image receiving right and a voice receiving right] to "C" for "A" and the attribute value at the time of choosing an image receiving right and the right of camera control. In addition, you may make it give not only attribute value, such as "A" and "B" which show the combination of service, and "C", but the combination of service to the ticket for direct continuation as information given to the ticket for connection. For example, the content of "service: Write information, such as camera-control chisel" and "content of service:voice + camera control", in the ticket for direct continuation.
[0053] For this reason, in processing by the camera server 110 shown in above-mentioned drawing 5 (a) and (b), the processing which writes the above-mentioned attribute value in a connection ticket during processing of step S502 is added. Moreover, into step S505, it is at the image transmitting time, and in case a ticket check is performed, the processing which also doubles and checks attribute value is added. Furthermore, the processing which opts for the service distributed with attribute value during processing of step S507 is added. You may make it give priority to the transmitting origin (client) of the ticket which has the predetermined attribute value defined beforehand at this time.
[0054] Moreover, in case a client 130 publishes a ticket purchasing demand to the accounting server 120, I have it chosen to give [to wish one's service], and distinction of the above-mentioned service is made by this selection information being told with a camera server 110 HECHIKETTO issuance demand.
[0055] As mentioned above, with the gestalt of this operation, an attribute and priority are given to the ticket for connection and it was made to distinguish the content of service of a client 130 by the camera server 110 based on it. The effectiveness that the thing which were mentioned above and for which differentiation of service is attained becomes [as for this] possible in addition to the effectiveness in the gestalt of the 1st operation can also be acquired.
[0056] In addition, it cannot be overemphasized by the object of this invention supplying the storage which memorized the program code of the software which realizes the host of the gestalt of each operation mentioned above, and the function of a terminal to a system or equipment, and reading and

performing the program code with which the computer (or CPU and MPU) of the system or equipment was stored in the storage that it is attained. In this case, the program code itself by which reading appearance was carried out from the storage will realize the function of the gestalt of each operation, and the storage which memorized that program code will constitute this invention. As a storage for supplying a program code, the memory card of ROM, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, and a non-volatile etc. can be used. Moreover, it cannot be overemphasized by performing the program code which the computer read that it is contained also when the function of the gestalt of each operation is not only realized, but it performs a part or all of processing that OS which is working on a computer is actual, based on directions of the program code and the function of the gestalt of each operation is realized by the processing. Furthermore, after the program code by which reading appearance was carried out from a storage is written in the memory with which the functional expansion unit connected to the extension board inserted in the computer or the computer is equipped, it cannot be overemphasized that it is contained based on directions of the program code also when a part or all of processing that CPU with which the functional add-in board and functional expansion unit are equipped is actual performs and the function of the gestalt of each operation is realized by the processing.

[0057]

[Effect of the Invention] As explained above, in case a client receives service (service which offers the image acquired with image pick-up equipment, voice, etc.) from a service provision server, by this invention, a client requires ticket purchasing of an accounting server first. An accounting server checks the client which transmitted the ticket purchasing demand with reference to the information on the client beforehand memorized in the database etc. (confidential information for accounting, such as a credit number of a client), and it transmits the demand of ticket issuance to a service provision server while it will perform settlement-of-accounts processing, if it is a right client. A service provision server memorizes the information in a database etc. while it generates a ticket (ticket for connection) and returns it to an accounting server based on the ticket issuance demand from an accounting server. An accounting server transmits the ticket returned from the service provision server to a client. Therefore, using the ticket returned from the accounting server, a client connects with a service provision server and transmits a service request. When it checks by referring to the information which memorized previously the justification of the ticket with which the carrier beam service provision server used this when a client was a service request in the database etc. and the right thing is checked, service is offered to a client. Thus, it can charge to the service which a client receives, without this information covering a network-load over an accounting server, without minding an accounting server, even if the services which a service provision server offers by having constituted are stream information, such as an animation and voice.

[0058] Moreover, it can charge to the service which a client receives, without getting to know information with the private credit card number of a client etc. (confidential information for accounting) apart from an accounting server at a service provision server side having an authentication device by the service provision server side, i.e., by publishing ticket issuance by the service provision server side, and managing the authentication information by the service provision server side. This not only can maintain the anonymity of a client to a service provision server side, but can save the time and effort which makes security countermeasures severe also for a service provision server side, and the advantage in which employment becomes very easy also exists.

[0059] Furthermore, when the services which a service provision server offers are two or more services, For example, image information, speech information, and the right of photography motion control (in the case of having the device which enables a service provision server to operate image pick-up equipment from the remote place connected in the network etc.) When it is service, such as a control of this image pick-up equipment, differentiation of service can also be achieved by giving the combination or all the attributes of service of these plurality to a ticket.

[0060] Therefore, according to this invention, even if the information for service is stream mold data, offer of the service to a client side can be efficiently carried out to insurance.

TECHNICAL FIELD

[Field of the Invention] In case this invention offers service of stream information, such as an image and voice, to a client side through a network, it relates to the technique for charging to the service from which this client side receives.

PRIOR ART

[Description of the Prior Art] The information transmission system which offers service of media data, such as an image and voice, through networks, such as the Internet, to two or more client sides connected on the network conventionally is developed. Specifically, "RealAudio", "RealVideo", "VDOLive", etc. are mentioned. Moreover, as a system which can perform camera actuation, such as a zoom and a pantilt, from a client side, "WebView" of Canon, Inc. etc. is mentioned to the image pick-up equipment on a network.

[0003] By the way, in the above information transmission systems, when charging to digital contents, such as an image transmitted to a client side with a service request, and a still picture, MIDI data, it is common that the following accounting approaches are used. First, payment systems, such as a credit card number, are beforehand notified to the side (henceforth a "contents server side") which offers service from the client side. And a contents server side gives ********** advice of the confidential information, such as a user name and a password, after checking the payment system of a client side. Thereby, a client side becomes possible [receiving digital contents].

[0004] However, by the above-mentioned accounting approach, since there was time and effort which a client side must notify that information with a private credit card number etc. is to a contents server side and to which a client side must carry out user registration as it is uneasy, there was a problem of being hard to spread. Moreover, it was difficult for there to be a problem that it cannot perform bank pulling down if it does not become a certain amount of [when performing small sum settlement of accounts] amount of money since a commission starts that the contents server side which is the side which offers service performs bank pulling down and credit settlement of accounts, and a problem that it can be hard to cleave a labor cost in order to check settlement of a small sum, therefore to perform small sum settlement of accounts on-line.

[0005] Then, in order to solve the above problems, in recent years, the accounting system and cybermoney method which enable the small sum settlement of accounts which held anonymity and was automated have appeared. When a contents server side offers small sum service by this, it is expected that the technique of building the information transmission system using the accounting system (henceforth an "accounting server") which executes a settlement service by proxy becomes in use, without performing a settlement service by the contents server side. As an accounting system with these descriptions, "BitCash" of a BitCash company, "CyberCash" in CyberCash woods, "CyberCoin", etc. are mentioned.

EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, in case a client receives service (service which offers the image acquired with image pick-up equipment, voice, etc.) from a service provision server, by this invention, a client requires ticket purchasing of an accounting server first. An accounting server checks the client which transmitted the ticket purchasing demand with reference to the information on the client beforehand memorized in the database etc. (confidential information for accounting, such as a credit number of a client), and it transmits the demand of ticket issuance to a service provision server while it will perform settlement-of-accounts processing, if it is a right client. A service provision server memorizes the information in a database etc. while it generates a ticket (ticket for connection) and returns it to an accounting server based on the ticket issuance demand from an accounting server. An accounting server transmits the ticket returned from the service provision server to a client. Therefore, using the ticket returned from the accounting server, a client connects with a service provision server and transmits a service request. When it checks by referring to the information which memorized previously the justification of the ticket with which the carrier beam service provision server used this when a client was a service request in the database etc. and the right thing is checked, service is offered to a client. Thus, it can charge to the service which a client receives, without this information covering a network-load over an accounting server, without minding an accounting server, even if the services which a service provision server offers by having constituted are stream information, such as an animation and voice.

[0058] Moreover, it can charge to the service which a client receives, without getting to know information with the private credit card number of a client etc. (confidential information for accounting) apart from an accounting server at a service provision server side having an authentication device by the service provision server side, i.e., by publishing ticket issuance by the service provision server side, and managing the authentication information by the service provision server side. This not only can maintain the anonymity of a client to a service provision server side, but can save the time and effort which makes security countermeasures severe also for a service provision server side, and the advantage in which employment becomes very easy also exists.

[0059] Furthermore, when the services which a service provision server offers are two or more services, For example, image information, speech information, and the right of photography motion control (in the case of having the device which enables a service provision server to operate image pick-up equipment from the remote place connected in the network etc.) When it is service, such as a control of this image pick-up equipment, differentiation of service can also be achieved by giving the combination or all the attributes of service of these plurality to a ticket.

[0060] Therefore, according to this invention, even if the information for service is stream mold data, offer of the service to a client side can be efficiently carried out to insurance.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, although a client side may be able to be attested by the accounting server side with the information transmission system using the conventional accounting servers, such as "BitCash", since the information on a client side was not transmitted, it was difficult [it] for the contents server side which is the side which offers service in many cases to attest a client side by the contents server side. For this reason, in the contents server side, security countermeasures needed to be made severe.

[0007] moreover, as data currently actually dealt with by the above-mentioned conventional accounting server Although there is much are recording mold data with comparatively small data, such as a static image and download of software, and it is common to transmit these data to a client side through an accounting server when service of such data is required from a client side When the data set as the object of service are stream mold data, such as an image, and data transmission which went via the accounting server is performed, there is a problem that the network-load of an accounting server is large.

[0008] then , this invention be accomplished in order to remove the above-mentioned fault , and even if the information for service be stream mold data , it aim at offer the storage which stored the processing step for carry out the accounting equipment which can carry out offer of the service to a client side to insurance efficiently , an information transmission system , the accounting approach , and it possible [read-out of a computer] .

[Means for Solving the Problem] If a client pays a countervalue to the bottom of this object for example, by the accounting server by this invention, the information is transmitted to a service provision server (contents servers, such as a camera server which offers the image acquired with image pick-up equipment, and voice) from an accounting server, based on the information, by the contents server side, a ticket (ticket for connection) will be published and KURAIANTOHE transmission will be carried out through an accounting server. A client connects with a service provision server with this ticket for connection. Thereby, the service (information, such as an image and voice) which the client required does not go via an accounting server. Moreover, by embedding the password for identifying the hour entries (time amount which can view and listen to an image or voice) which can connect a client, a ticket number, and a client etc. to the ticket for connection, where the anonymity of a client is maintained, client authentication can be performed.

[0010] Namely, a storage means for the 1st invention to be accounting equipment charged to the service with which the server provided this client based on the service request from a client, and to memorize the predetermined information about the above-mentioned client, A purchasing demand reception means to receive the purchasing demand of the ticket used in case a service request is transmitted to the above-mentioned server from the above-mentioned client, A judgment means to judge the justification of the demand received with the above-mentioned purchasing demand reception means based on the information on the above-mentioned storage means, A ticket demand means to require issuance of the above-mentioned ticket of the above-mentioned server based on the judgment result in the above-mentioned judgment means, It is characterized by having an accounting means to perform accounting to the service which the above-mentioned client receives, and a transmitting means to transmit the ticket returned by the demand with the above-mentioned ticket demand means from the above-mentioned server to the above-mentioned client, based on the judgment result in the above-mentioned judgment means.

[0011] 2nd invention is characterized by the thing of the right of photography motion control at the time of acquiring the speech information and image information that the above-mentioned service was acquired in the above-mentioned server, and this image included for any they are at least in the 1st above-mentioned invention.

[0012] 3rd invention is characterized by the thing of the information for identifying the above-mentioned client generated in the above-mentioned server, a hour entry with the above-mentioned client able to receive service from the above-mentioned server, and the electronic signature information generated in the above-mentioned server included for any they are at least in the 1st above-mentioned invention by the information on the above-mentioned ticket.

[0013] 4th invention is characterized by the information on the above-mentioned ticket being the information enciphered with the predetermined cipher system in the above-mentioned server in the 1st above-mentioned invention.

[0014] The 5th invention is the information transmission system which comes to connect the service provision server which transmits the information corresponding to the service demanded from the client of arbitration to this client, and the accounting server charged to the service with which the above-mentioned client was provided on the same network with the above-mentioned client, and it carries out that the above-mentioned accounting server has the function of accounting equipment given in any of claims 1-4 they are as the description.

[0015] The service provision server which transmits the information corresponding to the service as which the 6th invention was required from the client of arbitration to this client, The accounting server which the above-mentioned client charges from the above-mentioned service provision server to carrier beam service It is the information transmission system which it comes to connect on the same network with the above-mentioned client. The above-mentioned client A means to transmit the purchasing demand of the ticket used in case a service request is transmitted to the above-mentioned service

provision server to the above-mentioned accounting server, A means to transmit a service request to the above-mentioned service provision server using the ticket returned by this ticket purchasing demand from the above-mentioned accounting server is included. The above-mentioned accounting server A means to memorize the information about the above-mentioned client, and a means to judge the justification of the ticket purchasing demand from the above-mentioned client based on this storage information, A means to transmit the issuance demand of a ticket to the above-mentioned service provision server based on this judgment result, A means to perform settlement-of-accounts processing to the service which the above-mentioned client receives based on the above-mentioned judgment result, A means to transmit the ticket returned by the above-mentioned ticket issuance demand from the above-mentioned service provision server to the above-mentioned client is included. The above-mentioned service provision server A means to generate a ticket based on the ticket issuance demand from the above-mentioned accounting server, A means to memorize the information on this ticket, and a means to transmit this ticket to the above-mentioned accounting server, It is characterized by including a means to receive the service request from the above-mentioned client, a means to judge the justification of the above-mentioned service request from the above-mentioned storage information, and a means to transmit the information based on the above-mentioned service request to the above-mentioned client based on this judgment result.

[0016] 7th invention is characterized by the above-mentioned service including a means by which it is included at least any they are and the above-mentioned service provision server judges whether it has the access of the right of photography motion control at the time of acquiring speech information, image information, and this image in which the client of the above-mentioned service request origin receives the above-mentioned service in the 6th above-mentioned invention.

[0017] A means by which the 8th invention generates the above-mentioned ticket in the above-mentioned service provision server in the 6th above-mentioned invention is characterized by generating the ticket of a hour entry with the information and the above-mentioned client able to receive service for identifying the above-mentioned client which includes which information at least.

[0018] A means for a means by which the 9th invention generates the above-mentioned ticket in the above-mentioned service provision server in the 6th above-mentioned invention to generate a ticket with a predetermined cipher system, and for a means to receive the above-mentioned service request to decrypt the above-mentioned ticket used for this service request, and to judge the justification of the above-mentioned service request carries out performing the judgment with the ticket by which the decryption was carried out [above-mentioned] as the description.

[0019] A means for a means by which the 10th invention generates the above-mentioned ticket in the above-mentioned service provision server in the 6th above-mentioned invention to generate a ticket including predetermined electronic signature, and to judge the justification of the above-mentioned service request is characterized by performing the judgment by the electronic signature in the above-mentioned ticket used for the above-mentioned service request.

[0020] The 11th invention is that a client transmits a service request to a service provision server. Accounting to the service which a client receives from a service provision server The step which transmits the purchasing demand of the ticket which is the accounting approach for carrying out in an accounting server, and it uses in case the above-mentioned client transmits a service request to the above-mentioned service provision server to the above-mentioned accounting server, The above-mentioned accounting server is based on the information about the above-mentioned client memorized beforehand. While judging the justification of the ticket purchasing demand from the above-mentioned client and transmitting the issuance demand of a ticket to the above-mentioned service provision server based on this judgment result While the above-mentioned service provision server generates a ticket and remembers the information on this ticket to be the step which performs settlement-of-accounts processing to the service which the above-mentioned client receives based on the ticket issuance demand from the above-mentioned accounting server The step which transmits this ticket to the above-mentioned accounting server, and the above-mentioned accounting server by the above-mentioned ticket issuance demand The step which transmits the ticket returned from the above-mentioned service

provision server to the above-mentioned client, and the above-mentioned client by the above-mentioned ticket purchasing demand The step which transmits a service request to the above-mentioned service provision server using the ticket returned from the above-mentioned accounting server, The above-mentioned service provision server receives the service request from the above-mentioned client. **, The justification of the above-mentioned service request is judged from the storage information on the above-mentioned ticket, and it is characterized by including the step which transmits the information based on the above-mentioned service request to the above-mentioned client based on this judgment result.

[0021] 12th invention is characterized by including at least any they are and the above-mentioned service containing the step which judges whether the above-mentioned service provision server has the access of the right of photography motion control at the time of acquiring speech information, image information, and this image in which the client of the above-mentioned service request origin receives the above-mentioned service in the 11th above-mentioned invention.

[0022] 13th invention is characterized by including the step of a hour entry with information and the above-mentioned client able to receive service for the above-mentioned service provision server to identify the above-mentioned client for the above-mentioned ticket generated including which information at least in the 11th above-mentioned invention.

[0023] In the 11th above-mentioned invention, when the above-mentioned service provision server generates the above-mentioned ticket and receives the service request from the above-mentioned client with a predetermined cipher system, the 14th invention decrypts the above-mentioned ticket used for this service request, and is characterized by including the step which performs justification of this service request with the ticket by which the decryption was carried out [above-mentioned].

[0024] In the 11th above-mentioned invention, 15th invention is characterized by including the step which performs justification of the above-mentioned ticket used for this service request by the electronic signature in the above-mentioned ticket, when the above-mentioned service provision server generates the above-mentioned ticket including predetermined electronic signature and receives the service request from the above-mentioned client.

[0025] 16th invention is characterized by being the storage which stored the accounting approach given in any of claims 11-15 they are possible [read-out of a computer].

[0026]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained using a drawing.

[0027] (Gestalt of the 1st operation) This invention is applied to the information transmission system 100 as shown in drawing 1 . This information transmission system 100 is a system only with the client side able to receive service of an image which paid the tariff, and as shown in above-mentioned drawing 1 , it connects on computer networks, such as the Internet, respectively, and the camera server 110 which offers service of an image, the client 130 which requires service of an image, and the accounting server 120 which performs accounting to the service which the client 130 required are constituted so that two-way communication may be possible. In addition, although each shows one camera server 110 and a client 130 by above-mentioned drawing 1 since explanation is easy, it is good also as that in which two or more each exists.

[0028] The camera server 110 acquires the image based on the service request of the image from a client 130, and transmits the image to a client 130 while it publishes the ticket based on the ticket issuance demand from the accounting server 120 mentioned later. For this reason, the camera equipment 111 which digitizes the image information which the camera server 110 photoed the photographic subject and was acquired, The image acquisition section 113 which acquires the image information acquired with camera equipment 111, The image transmitting section 114 which transmits the image information acquired in the image acquisition section 113 to a client 130 through a network, the database for the connection ticket registration for accumulating the information on the published ticket (DB) -- 115 -- While publishing a ticket based on the ticket issuance request received in the ticket issuance request reception section 116 which receives the ticket issuance request transmitted from the accounting server

120, and the ticket issuance request reception section 116 The ticket issuance section 117 which accumulates the ticket information in DB115 for connection ticket registration (registration), The ticket transmitting section 118 which transmits the ticket published in the ticket issuance section 117 to the accounting server 120, The image demand reception section 119 which receives the service request of an image using the ticket for connection later mentioned from a client 130, It comes to contain the ticket judging section 112 which checks the service request received in the image demand reception section 119 based on the ticket information on DB115 for connection ticket registration. In addition, camera equipment 111 may be one apparatus camera equipment which contained the device in which the image information photoed and acquired was digitized, and may be equipped with the device in which the above digitizes, with the gestalt of another board.

[0029] The accounting server 120 transmits the information based on it to the camera server 110 by the ticket purchasing demand from a client 130, and transmits to a client 130 by using as the ticket for connection the ticket answered from the camera server 110. for this reason -- accounting -- a server -- 120 -- accounting -- ** -- confidential information -- etc. -- accumulating -- a sake -- a database -- (-- DB --) -- 121 -- a client -- 130 -- from -- a ticket -- purchasing -- a demand (although mentioned later for details) The purchasing reception section 122 which receives the demand including information, such as goods to buy, the content of service, and accounting information, The accounting information judging section 123 which judges the justification of the purchasing demand received in the purchasing reception section 122 based on the information on accounting information DB121, The ticket issuance request transmitting section 124 which requires the issuance request of camera server 110 HECHIKETTO based on the judgment result of the accounting information judging section 123, It comes to contain the ticket receive section 125 which receives the ticket published by the camera server 110, and the ticket transmitting section 126 which transmits to a client 130 by using as the ticket for connection the ticket received in the ticket receive section 125.

[0030] A client 130 comes to contain the ticket purchase demand section 131 which requires the purchase of a ticket of the accounting server 120, the ticket receive section 132 which receives the ticket for connection from the accounting server 120, the image demand section 133 which carries out the camera server 110 HE demand of the service of an image using the ticket for connection received in the ticket receive section 132, and the image receive section 134 which does a screen display etc. while receiving the image from the camera server 110.

[0031] Actuation of the above whole image transmission system 100 turns into actuation according to the flow chart shown in drawing 2 .

[0032] Step S201: A client 130 performs the purchasing demand (demand for viewing and listening of the image acquired by the camera server 110) of a ticket to the accounting server 120. The accounting information (henceforth "settlement-of-accounts information") mentioned later, the information on the image for which it wishes (camera Server Name, image stream name, etc.), the information on a connect time with that camera server for which it wishes are included in the demand information at this time.

[0033] Step S202: The accounting server 120 requires ticket issuance from the camera server 110, when the settlement-of-accounts information on the demand from a client 130 is just.

[0034] Step S203: Return the camera server 110 to the accounting server 120 while it publishes a ticket and registers it to DB115 for connection ticket registration by the demand from the accounting server 120. The accounting server 120 transmits to a client 130 by using as the ticket for connection the ticket returned from the camera server 110.

[0035] Step S204: A client 130 requires service of the image over the camera server 110 using the ticket for connection from the accounting server 120 (connection request).

[0036] Step S205: By the demand from a client 130, the camera server 110 checks the content of the ticket for connection used for it from the content of the ticket previously registered to DB115 for connection ticket registration, when it is a right demand, acquires the image according to the demand, and transmits it to a client 130.

[0037] Step S206: Receive the image from the camera server 110 and, as for a client 130, a screen display etc. carries out it.

[0038] Here, drawing 3 shows the actuation at the time of paying one's attention to a client 130, drawing 4 shows the actuation at the time of paying one's attention to the accounting server 120, and drawing 5 (a) and (b) show the actuation at the time of paying one's attention to the camera server 110. Hereafter, each actuation is explained concretely.
[0039] (1) Processing in a client 130 (refer to above-mentioned drawing 3)
Step S301: The ticket purchasing demand section 131 requires ticket purchasing from the accounting server 120 (viewing-and-listening demand). Settlement-of-accounts information, camera Server Name and an image stream name, and a connect time are contained in this demand. Here, settlement-of-accounts information is cybermoney, the card information on a prepaid card method, etc., and points out the information (a code, password, etc.) specified by the site which performs online small sum settlement of accounts. It is information as specifically shown in drawing 6 .
Step S302: A client 130 goes into a ticket receiving waiting state after the demand of ticket purchasing from the accounting server 120 in the ticket receive section 132 in step S301.
Step S303 - step S305: If the ticket receive section 132 receives the ticket for connection from the accounting server 120 (step S303), the image demand section 133 will require service of an image from the camera server 110 using the information on the ticket for connection (step S304). Then, a client 130 goes into the receiving waiting state of the image from the camera server 110 in the image receive section 134. Step S306: If the image from the camera server 110 is received, as for the image receive section 134, a screen display etc. will carry out it.
[0040] (2) Processing in the accounting server 120 (refer to above-mentioned drawing 4)
Step S401: The purchasing reception section 122 receives the ticket purchasing demand (above-mentioned drawing 3 : step S301 reference) from a client 130.
Step S402: The accounting information judging section 123 checks the settlement-of-accounts information (accounting information) included in the demand received in the purchasing reception section 122 using the information accumulated in accounting information DB121.
Step S403: and the accounting information judging section 123 distinguish whether the demand from a client 130 is just in step S402 as a result of a check. As a result of this distinction, only when it is a right demand, it progresses to processing from the following step S404, and when that is not right, this demand is disregarded.
Step S404 - step S406: A right case, the accounting information judging section 123 performs settlement-of-accounts processing actually (step S404), and the demand (settlement-of-accounts information) from a client 130 requires issuance of a ticket from the camera server 110 (step S405). Information, such as camera Server Name included in a demand from a client 130, an image stream name, and a connect time, is also included in this demand. Then, the accounting server 120 goes into a ticket receiving waiting state from the camera server 110 in the ticket receive section 125 (step S406).
Step S407: If the ticket receive section 125 receives the ticket from the camera server 110, the ticket transmitting section 126 will transmit to a client 130 by using the ticket as the ticket for connection.
[0041] (3-1) Ticket issuance processing in the camera server 110 (refer to above-mentioned drawing 5 (a))
Step S501: The ticket issuance request section 116 receives the demand (above-mentioned drawing 4 : step S405 reference) of the ticket issuance from the accounting server 120.
Step S502: Based on the demand received in the ticket issuance request section 116, the ticket issuance section 117 publishes a ticket and registers it to DB115 for connection ticket registration. While camera Server Name included in the demand of the ticket issuance from the accounting server 120 as information on this ticket, an image stream name, a connect time, etc. are included, confidential information, such as a ticket number, ticket issuance time amount, and a password, is also included. It considers as information as specifically shown in drawing 7 .
Step S503: The ticket transmitting section 118 transmits to the accounting server 120 by using as the ticket for connection the ticket published in the ticket issuance section 117.
[0042] (3-2) Image offer processing in the camera server 110 (refer to above-mentioned drawing 5 (b))
Step S504: The image demand reception section 119 receives the service request (above-mentioned

drawing 3 : step S304 reference) of the image from a client 130.
Step S505: Perform the ticket judging section 112 by referring to the information registered into DB115 for connection ticket registration in the judgment of the justification of the items mentioned of the ticket for connection currently used for the demand received in the image demand reception section 119. As a matter which judges here, camera Server Name and an image stream name, and the present time of day consider as the matter about whether a ticket number and a password are right whether it is the connectable inside of time amount, for example.
Step S506: When the ticket for connection in step S505 used for the above-mentioned demand as a result of the judgment is just, processing of the following step S507 is performed, and this demand is disregarded when that is not right.
Step S507: When the demand from a client 130 is just, the image transmitting section 114 transmits the image acquired in the image acquisition section 113 to a client 130.
[0043] In addition, the camera server 110 Steps S501-S503 The thread which carries out repeat processing () [above-mentioned <A HREF="/Tokujitu/tjitemdrw.ipdl?N0000=240&N0500=1E_N/;> ==?6:9=///&N0001=107&N0552=9&N0553=000007"] It is made as [perform / processing of TARGET="tjitemdrw"> drawing 5 (a), and processing which consisted of two threads with the thread (processing of above-mentioned drawing 5 (b)) which repeats and processes steps S504-S507]. These are made as [carry out / mediating DB115 for connection ticket registration / coordination actuation].
[0044] As mentioned above, the camera server 110 published the ticket for connection for receiving service, and the client 130 carried out the service request of the download of an image etc. to the camera server 110 using the ticket for connection, and when the camera server 110 offered this service to the client 130 with a service request, it constituted from a gestalt of this operation so that it might charge by the accounting server 130 to service of the ticket for connection. It can charge to the service which a client 130 receives, without covering a network-load over the accounting server 130 by this, without minding the accounting server 130 for these data, even if the data for service are stream information like an image stream. Moreover, it can charge, without the camera server 110 getting to know information with the private card number of a client 130 etc. independently [the accounting server 130] having an authentication device by the camera server 110 (offer side of service), i.e., by having constituted so that the ticket for connection might be published by the camera server 110 and the authentication information might be managed by the camera server 110. This not only can maintain the anonymity of a client 130 to the camera server 110, but can save the time and effort which makes security countermeasures severe also for the camera server 110, and the advantage in which employment becomes very easy also exists.
[0045] In addition, although considered as the configuration which forms the original accounting server 120 with the gestalt of above-mentioned operation, the existing accounting infrastructures ("BitCash" in BitCash woods, "CyberCash" of CyberCash, Inc., "CyberCoin", etc.) which have an equivalent function, for example may be substituted for the accounting server 120.
[0046] Moreover, it is also possible to raise security level further because it is made to encipher SSL etc. by the communication link between the camera server 110, a client 130, and the accounting server 120.
[0047] Moreover, although the password was written in this ticket when publishing a ticket by the camera server 110 (above-mentioned drawing 5 (a): step S502 reference), the one-time password which the password of immobilization is sufficient as and is created for every connection as this password, for example is sufficient. In the case of a one-time password, password creation processing is added during processing at the above-mentioned step S502. When the level of security is not called for so much, you may make it not use a password on the other hand.
[0048] Moreover, in case a ticket is published by the camera server 110 (above-mentioned drawing 5 (a): step S502 reference), you may make it add the electronic signature of the ticket itself to this ticket. Since existence of the alteration by those who received the client 130 of a transmission place and other tickets unjustly can be checked by this, it becomes possible to raise safety more. In this case, during processing of the above-mentioned step S502, while adding the processing which creates electronic signature, and the processing which writes electronic signature in a ticket, the electronic signature check

processing in a ticket is added during processing of step S505 of above-mentioned drawing 5 (b).
[0049] Moreover, in case a ticket issuance demand request is performed by the accounting server 120 (above-mentioned drawing 4 : step S405 reference), you may make it add electronic signature to the data itself. This becomes possible prevention of the unjust ticket issuance request demand by the third party, and to prevent an alteration, and it becomes possible to raise more the security between the accounting server 120 and the KAMERA server 110. In this case, the public keys (public key of an unsymmetrical key cipher system etc.) of the accounting server 120 are beforehand generated to the accounting server 120 side, and that public key is registered into the camera server 110. Moreover, while adding the processing which creates and transmits electronic signature during processing of the above-mentioned step S405, the processing which checks electronic signature during processing of step S501 of above-mentioned drawing 5 (a) is added.
[0050] (Gestalt of the 2nd operation) With the gestalt of this operation, in the information transmission system 100 of above-mentioned drawing 1 , service of an image receiving right, a voice receiving right, the right of camera control, etc. is also offered, and it charges to this.
[0051] For example, an information transmission system 100 has the function in which the actuation of the zoom of camera server 110 HE ****** and camera equipment 111, a pan, a tilt, etc. of a camera-control command is attained from a client 130, and the function to incorporate voice, like "WebView" of Canon, Inc. Moreover, it is referred to as three, an image receiving right, a voice receiving right, and the right of camera control, as service which the camera server 110 offers.
[0052] When the above information transmission systems 100 are systems with two or more contents of service, or functions, different attribute value for every these service and function is given to the ticket for connection. Specifically, "B" and attribute value at the time of choosing all image receiving rights, the voice receiving rights, and rights of camera control are set [the attribute value at the time of choosing an image receiving right and a voice receiving right] to "C" for "A" and the attribute value at the time of choosing an image receiving right and the right of camera control. In addition, you may make it give not only attribute value, such as "A" and "B" which show the combination of service, and "C", but the combination of service to the ticket for direct continuation as information given to the ticket for connection. For example, the content of "service: Write information, such as camera-control chisel" and "content of service:voice + camera control", in the ticket for direct continuation.
[0053] For this reason, in processing by the camera server 110 shown in above-mentioned drawing 5 (a) and (b), the processing which writes the above-mentioned attribute value in a connection ticket during processing of step S502 is added. Moreover, into step S505, it is at the image transmitting time, and in case a ticket check is performed, the processing which also doubles and checks attribute value is added. Furthermore, the processing which opts for the service distributed with attribute value during processing of step S507 is added. You may make it give priority to the transmitting origin (client) of the ticket which has the predetermined attribute value defined beforehand at this time.
[0054] Moreover, in case a client 130 publishes a ticket purchasing demand to the accounting server 120, I have it chosen to give [to wish one's service], and distinction of the above-mentioned service is made by this selection information being told with a camera server 110 HECHIKETTO issuance demand.
[0055] As mentioned above, with the gestalt of this operation, an attribute and priority are given to the ticket for connection and it was made to distinguish the content of service of a client 130 by the camera server 110 based on it. The effectiveness that the thing which were mentioned above and for which differentiation of service is attained becomes [as for this] possible in addition to the effectiveness in the gestalt of the 1st operation can also be acquired.
[0056] In addition, it cannot be overemphasized by the object of this invention supplying the storage which memorized the program code of the software which realizes the host of the gestalt of each operation mentioned above, and the function of a terminal to a system or equipment, and reading and performing the program code with which the computer (or CPU and MPU) of the system or equipment was stored in the storage that it is attained. In this case, the program code itself by which reading appearance was carried out from the storage will realize the function of the gestalt of each operation, and

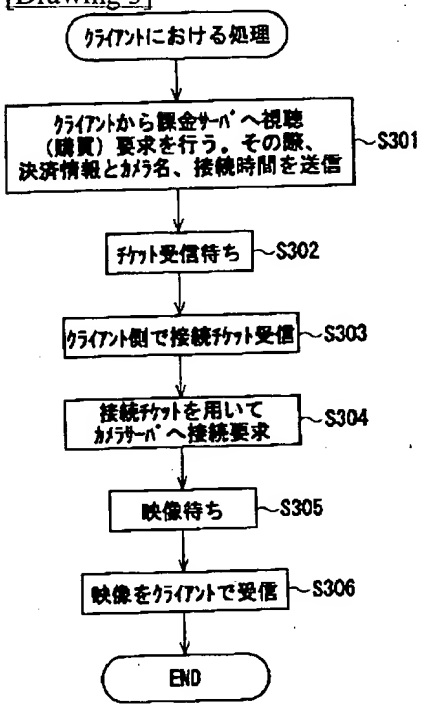
the storage which memorized that program code will constitute this invention. As a storage for supplying a program code, the memory card of ROM, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, and a non-volatile etc. can be used. Moreover, it cannot be overemphasized by performing the program code which the computer read that it is contained also when the function of the gestalt of each operation is not only realized, but it performs a part or all of processing that OS which is working on a computer is actual, based on directions of the program code and the function of the gestalt of each operation is realized by the processing. Furthermore, after the program code by which reading appearance was carried out from a storage is written in the memory with which the functional expansion unit connected to the extension board inserted in the computer or the computer is equipped, it cannot be overemphasized that it is contained based on directions of the program code also when a part or all of processing that CPU with which the functional add-in board and functional expansion unit are equipped is actual performs and the function of the gestalt of each operation is realized by the processing.

DESCRIPTION OF DRAWINGS

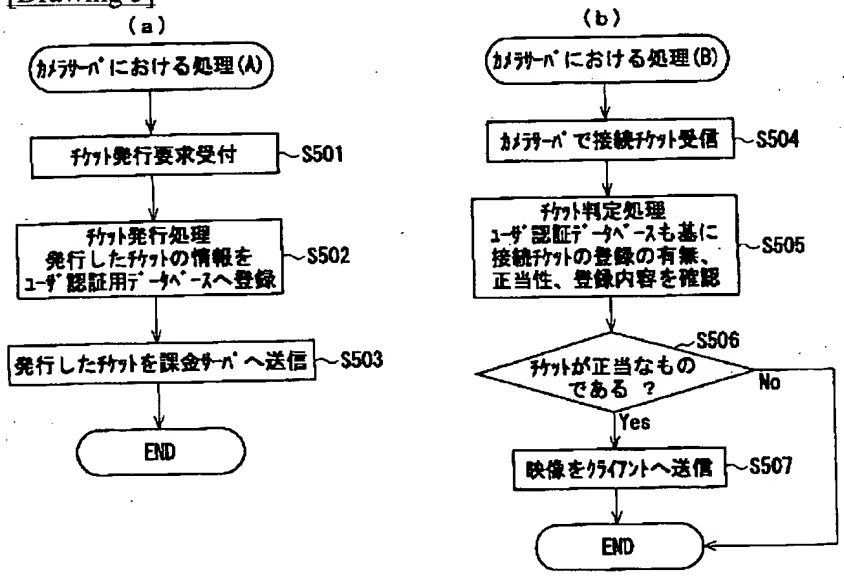
[Brief Description of the Drawings]
[Drawing 1] In the gestalt of the 1st operation, it is the block diagram showing the configuration of the information transmission system which applied this invention.
[Drawing 2] It is a flow chart for explaining actuation by the above-mentioned whole information transmission system.
[Drawing 3] It is a flow chart for explaining actuation of the client of the above-mentioned information transmission system.
[Drawing 4] It is a flow chart for explaining actuation of the accounting server of the above-mentioned information transmission system.
[Drawing 5] It is a flow chart for explaining actuation of the camera server of the above-mentioned information transmission system.
[Drawing 6] It is drawing for explaining the accounting information under demand sent to the above-mentioned accounting server from the above-mentioned client (settlement-of-accounts information).
[Drawing 7] It is drawing for the demand from the above-mentioned accounting server to explain the information on the ticket for connection published in the above-mentioned camera server.
[Description of Notations]
100 Information Transmission System
110 Camera Server
111 Camera Equipment
112 Ticket Judging Section
113 Image Acquisition Section
114 Image Transmitting Section
115 Database for Connection Ticket Registration
116 Ticket Issuance Request Reception Section
117 Ticket Issuance Section
118 Ticket Transmitting Section
119 Image Demand Reception Section
120 Accounting Server
121 Accounting Information Database
122 Purchasing Reception Section
123 Accounting Information Judging Section
124 Ticket Issuance Request Transmitting Section
125 Ticket Receive Section
126 Ticket Transmitting Section
130 Client
131 Ticket Purchasing Demand Section
132 Ticket Receive Section
133 Image Demand Section
134 Image Receive Section

DRAWINGS

[Drawing 3]

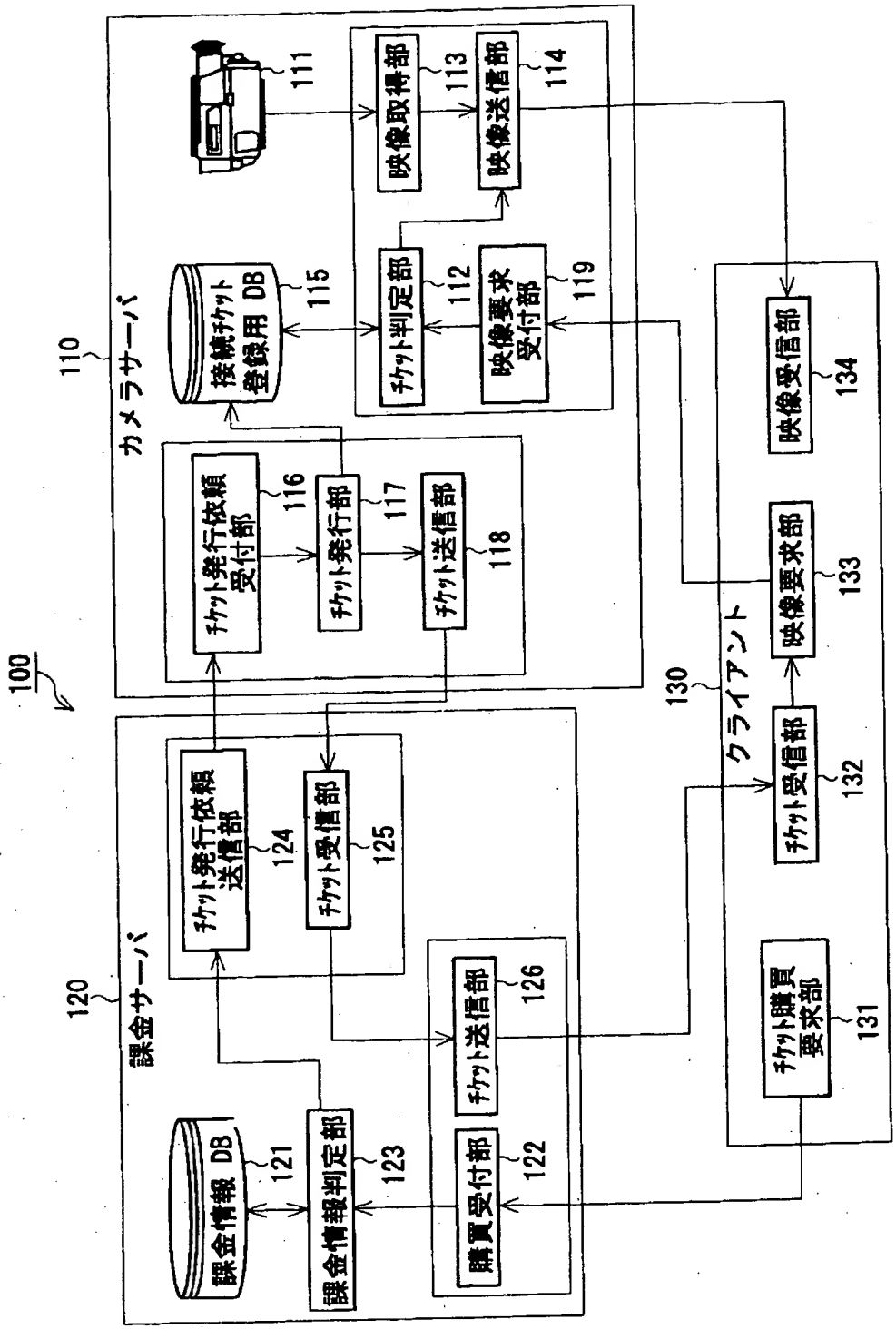


[Drawing 5]

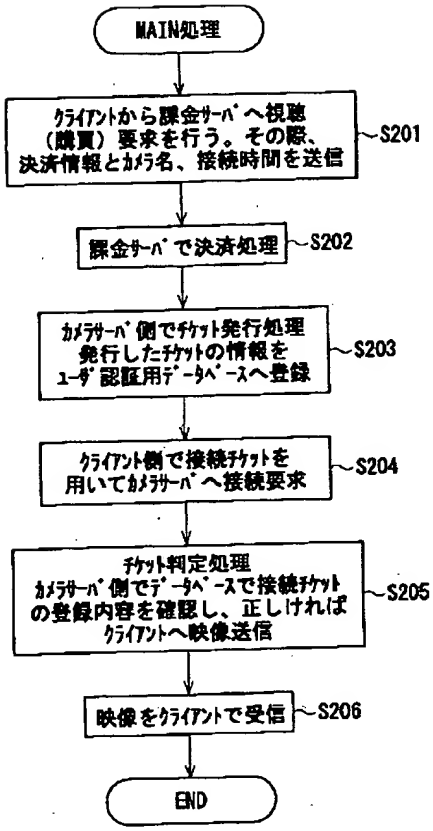


カメラサーバにおける処理

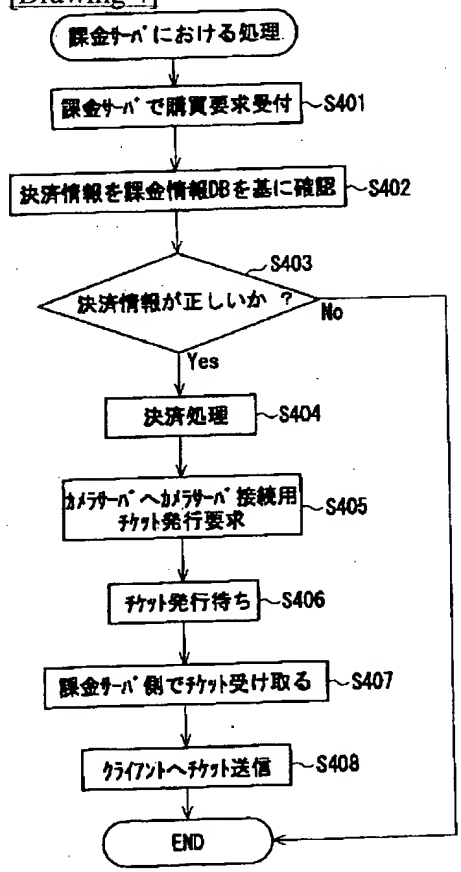
[Drawing 1]


100
110
カメラサーバ
111
映像取得部
113
映像送信部
114
接続チケット登録用 DB
115
チケット判定部
112
映像要求受付部
119
チケット発行依頼受付部
116
チケット発行部
117
チケット送信部
118
120
課金サーバ
チケット発行依頼送信部
124
チケット受信部
125
課金情報 DB
121
課金情報判定部
123
購買受付部
122
チケット送信部
126
130
クライアント
映像受信部
134
映像要求部
133
チケット受信部
132
チケット購買要求部
131

[Drawing 2]


MAIN処理
クライアントから課金サーバへ視聴（購買）要求を行う。その際、決済情報とカメラ名、接続時間を送信
S201
課金サーバで決済処理
S202
カメラサーバ側でチケット発行処理 発行したチケットの情報をユーザ認証用データベースへ登録
S203
クライアント側で接続チケットを用いてカメラサーバへ接続要求
S204
チケット判定処理 カメラサーバ側でデータベースで接続チケットの登録内容を確認し、正しければクライアントへ映像送信
S205
映像をクライアントで受信
S206
END

[Drawing 4]


課金サーバにおける処理
課金サーバで購買要求受付
S401
決済情報を課金情報DBを基に確認
S402
S403
決済情報が正しいか ？
No
Yes
決済処理
S404
カメラサーバへカメラサーバ接続用チケット発行要求
S405
チケット発行待ち
S406
課金サーバ側でチケット受け取る
S407
クライアントへチケット送信
S408
END

[Drawing 6]

視聴要求映像名 :flute.xpc.canon.co.jp:65318:camera1

視聴希望時間 :10(Minutes)

課金情報（課金暗号）:あいうえ かきくけ さしすせ なにぬね

[Drawing 7]

ｶﾒﾗｻｰﾊﾞ名 :elcamino.xpc.canon.co.jp

映像ｽﾄﾘｰﾑ名 :flute.xpc.canon.co.jp:65318:camera1

接続可能時間 :1998/1/28.14:33:30-1998/1/28.14:43:30

ﾁｹｯﾄ番号 :3a6d4555473d6c5b4

ﾁｹｯﾄ発行時刻 :1998/1/28.14:33:30

秘密情報（ﾊﾟｽﾜｰﾄﾞ）:@3a6d4555473d6c5b46503e423d664d
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H04N 7/173	640				

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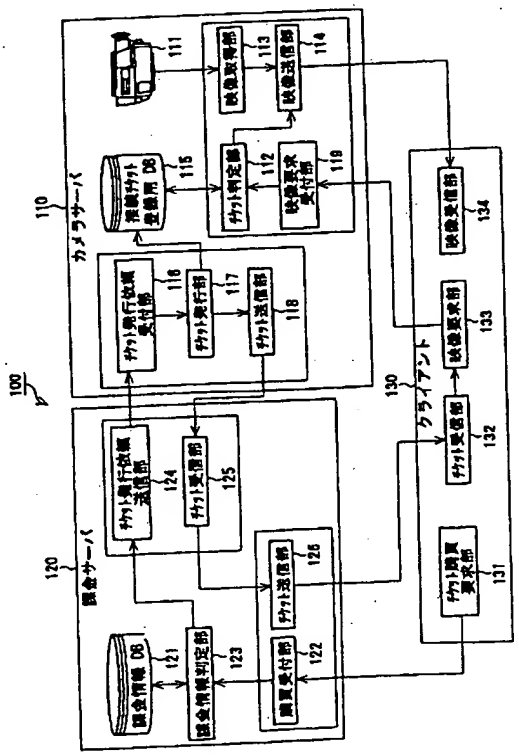
最終頁に続く

(54)【発明の名称】課金装置、情報伝送システム、課金方法、及び記憶媒体

(57)【要約】
【課題】　サービス対象の情報がストリーム型データであっても、クライアント側に対するサービスの提供を効率的に且つ安全に行うことが可能な、情報伝送システムを提供する。
【解決手段】　クライアント１３０がチケット購買要求を課金サーバ１２０へ送信することで、サービス提供サーバ１１０にて生成されたチケットが、課金サーバ１２０を介してクライアント１３０へ送信される。クライアント１１０は、そのチケットを用いて、サービス提供サーバ１１０へサービスを要求する。



1

【特許請求の範囲】

【請求項１】　クライアントからのサービス要求に基づいて、サーバが該クライアントに提供したサービスに対して課金を行う課金装置であって、

上記クライアントに関する所定情報を記憶する記憶手段と、

上記クライアントからの、上記サーバへサービス要求を送信する際に用いるチケットの購買要求を受け付ける購買要求受付手段と、

上記購買要求受付手段にて受け付けられた要求の正当性を、上記記憶手段の情報に基づいて判定する判定手段と、

上記判定手段での判定結果に基づいて、上記チケットの発行を上記サーバに要求するチケット要求手段と、

上記判定手段での判定結果に基づいて、上記クライアントが受けるサービスに対する課金を行う課金手段と、

上記チケット要求手段での要求により上記サーバから返送されてきたチケットを、上記クライアントに送信する送信手段とを備えることを特徴とする課金装置。

【請求項２】　上記サービスは、上記サーバにて取得された音声情報、映像情報、及び該映像を得る際の撮影動作制御権の少なくとも何れかを含むことを特徴とする請求項１記載の課金装置。

【請求項３】　上記チケットの情報は、上記サーバにて生成された上記クライアントを識別するための情報、上記クライアントが上記サーバからサービスを受けることが可能な時間情報、及び上記サーバにて生成された電子署名情報の少なくとも何れかを含むことを特徴とする請求項１記載の課金装置。

【請求項４】　上記チケットの情報は、上記サーバにて所定の暗号化方式で暗号化された情報であることを特徴とする請求項１記載の課金装置。

【請求項５】　任意のクライアントから要求されたサービスに対応する情報を、該クライアントへ送信するサービス提供サーバと、

上記クライアントに提供されたサービスに対して課金を行う課金サーバとが、上記クライアントと共に同一ネットワーク上に接続されてなる情報伝送システムであって、

上記課金サーバは、請求項１～４の何れかに記載の課金装置の機能を有することを特徴とする情報伝送システム。

【請求項６】　任意のクライアントから要求されたサービスに対応する情報を、該クライアントへ送信するサービス提供サーバと、

上記クライアントが上記サービス提供サーバから受けたサービスに対して課金を行う課金サーバとが、上記クライアントと共に同一ネットワーク上に接続されてなる情報伝送システムであって、

上記クライアントは、上記サービス提供サーバへサービス要求を送信する際に用いるチケットの購買要求を上記課金サーバへ送信する手段と、該チケット購買要求により上記課金サーバから返送されてきたチケットを用いて上記サービス提供サーバへサービス要求を送信する手段とを含み、

上記課金サーバは、上記クライアントに関する情報を記憶する手段と、該記憶情報に基づいて上記クライアントからのチケット購買要求の正当性を判定する手段と、該判定結果に基づいてチケットの発行要求を上記サービス提供サーバへ送信する手段と、上記判定結果に基づいて上記クライアントが受けるサービスに対する決済処理を行う手段と、上記チケット発行要求により上記サービス提供サーバから返送されてきたチケットを上記クライアントへ送信する手段とを含み、

上記サービス提供サーバは、上記課金サーバからのチケット発行要求に基づいてチケットを生成する手段と、該チケットの情報を記憶する手段と、該チケットを上記課金サーバへ送信する手段と、上記クライアントからのサービス要求を受け付ける手段と、上記サービス要求の正当性を上記記憶情報から判定する手段と、該判定結果に基づいて上記サービス要求に基づいた情報を上記クライアントへ送信する手段とを含むことを特徴とする情報伝送システム。

【請求項７】　上記サービスは、音声情報、映像情報、及び該映像を得る際の撮影動作制御権の少なくとも何れかを含み、

上記サービス提供サーバは、上記サービス要求元のクライアントが、上記サービスを受ける権利を有するか否かを判定する手段を含むことを特徴とする請求項６記載の情報伝送システム。

【請求項８】　上記サービス提供サーバでの上記チケットを生成する手段は、上記クライアントを識別するための情報、及び上記クライアントがサービスを受けることが可能な時間情報の少なくとも何れかの情報を含めたチケットを生成することを特徴とする請求項６記載の情報伝送システム。

【請求項９】　上記サービス提供サーバにおいて、

上記チケットを生成する手段は、所定の暗号化方式によってチケットを生成し、

上記サービス要求を受け付ける手段は、該サービス要求に用いられた上記チケットを復号化し、

上記サービス要求の正当性を判定する手段は、その判定を、上記復号化されたチケットにより行うことを特徴とする請求項６記載の情報伝送システム。

【請求項１０】　上記サービス提供サーバにおいて、

上記チケットを生成する手段は、所定の電子署名を含むチケットを生成し、

上記サービス要求の正当性を判定する手段は、その判定を、上記サービス要求に用いられた上記チケット中の電子署名によって行うことを特徴とする請求項６記載の情

報伝送システム。

【請求項１１】　クライアントがサービス提供サーバへサービス要求を送信することで、クライアントがサービス提供サーバから受けるサービスに対する課金を、課金サーバにて行うための課金方法であって、

上記クライアントが、上記サービス提供サーバへサービス要求を送信する際に用いるチケットの購買要求を上記課金サーバへ送信するステップと、

上記課金サーバが、予め記憶した上記クライアントに関する情報に基づいて、上記クライアントからのチケット購買要求の正当性を判定し、該判定結果に基づいて、チケットの発行要求を上記サービス提供サーバへ送信すると共に、上記クライアントが受けるサービスに対する決済処理を行うステップと、

上記サービス提供サーバが、上記課金サーバからのチケット発行要求に基づいて、チケットを生成して、該チケットの情報を記憶すると共に、該チケットを上記課金サーバへ送信するステップと、

上記課金サーバが、上記チケット発行要求により、上記サービス提供サーバから返送されてきたチケットを上記クライアントへ送信するステップと、

上記クライアントが、上記チケット購買要求により、上記課金サーバから返送されてきたチケットを用いて上記サービス提供サーバへサービス要求を送信するステップと、

上記サービス提供サーバが、上記クライアントからのサービス要求を受け付けけ、上記サービス要求の正当性を上記チケットの記憶情報から判定し、該判定結果に基づいて、上記サービス要求に基づいた情報を上記クライアントへ送信するステップとを含むことを特徴とする課金方法。

【請求項１２】　上記サービスは、音声情報、映像情報、及び該映像を得る際の撮影動作制御権の少なくとも何れかを含み、

上記サービス提供サーバが、上記サービス要求元のクライアントが上記サービスを受ける権利を有するか否かを判定するステップを含むことを特徴とする請求項１１記載の課金方法。

【請求項１３】　上記サービス提供サーバが、上記チケットを、上記クライアントを識別するための情報、及び上記クライアントがサービスを受けることが可能な時間情報の少なくとも何れかの情報を含めて生成するステップを含むことを特徴とする請求項１１記載の課金方法。

【請求項１４】　上記サービス提供サーバが、所定の暗号化方式によって上記チケットを生成し、上記クライアントからのサービス要求を受信した場合には、該サービス要求に用いられた上記チケットを復号化し、該サービス要求の正当性を、上記復号化されたチケットにより行うステップを含むことを特徴とする請求項１１記載の課金方法。

【請求項１５】　上記サービス提供サーバが、所定の電子署名を含む上記チケットを生成し、上記クライアントからのサービス要求を受信した場合には、該サービス要求に用いられた上記チケットの正当性を、上記チケット中の電子署名によって行うステップを含むことを特徴とする請求項１１記載の課金方法。

【請求項１６】　請求項１１～１５の何れかに記載の課金方法を、コンピュータが読み出し可能に格納したことを特徴とする記憶媒体。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、例えば、映像や音声等のストリーム情報のサービスを、ネットワークを介してクライアント側に対して提供する際に、該クライアント側が受けるサービスに対して課金を行うための技術に関するものである。

【０００２】

【従来の技術】従来より例えば、インターネット等のネットワークを介して、映像や音声等のメディアデータのサービスを、そのネットワーク上に接続された複数のクライアント側に対して提供する情報伝送システムが開発されている。具体的には、”ＲｅａｌＡｕｄｉｏ”や”ＲｅａｌＶｉｄｅｏ”、”ＶＤＯＬｉｖｅ”等が挙げられる。また、ネットワーク上の撮像装置に対して、クライアント側からズームやパン・チルトといったカメラ操作を行うことが可能なシステムとしては、キヤノン株式会社の”ＷｅｂＶｉｅｗ”等が挙げられる。

【０００３】ところで、上述のような情報伝送システムにおいて、サービス要求のあったクライアント側に対して送信する映像や静止画、ＭＩＤＩデータ等のディジタルコンテンツに対して課金を行う場合、次のような課金方法が用いられるのが一般的である。先ず、予めクライアント側からクレジットカード番号等の決済手段を、サービスを提供する側（以下、「コンテンツサーバ側」と言う）に通知しておく。そして、コンテンツサーバ側は、クライアント側の決済手段を確認した後、ユーザ名やパスワード等の秘密情報をクライアント側へ通知する。これにより、クライアント側は、ディジタルコンテンツを受信することが可能となる。

【０００４】しかしながら、上記の課金方法では、クライアント側がクレジットカード番号等のプライベートな情報をコンテンツサーバ側に通知しなければならない不安と、クライアント側がユーザ登録を行わなければならない手間があるため、普及しにくいという問題があった。また、サービスを提供する側であるコンテンツサーバ側は、銀行引き落としやクレジット決済を行うのに手数料がかかるため、少額な決済を行う場合にはある程度の金額にならなければ銀行引き落としができないという問題や、少額の決済を確認するために人件費を割くことができにくいという問題があり、したがって、少額な決

済をオンラインで行うことは困難であった。

【０００５】そこで、上述のような問題を解決するため、近年では、匿名性を保持し且つ自動化された少額決済を可能とする課金システムや電子マネー方式が登場してきた。これにより、コンテンツサーバ側が少額なサービスを提供する場合には、コンテンツサーバ側で決済業務を行わずに、決済業務を代行する課金システム（以下、「課金サーバ」と言う）を利用した情報伝送システムを構築する手法が主流になると予想される。これらの特徴を持つ課金システムとしては、ＢｉｔＣａｓｈ社の”ＢｉｔＣａｓｈ”や、ＣｙｂｅｒＣａｓｈ社の”ＣｙｂｅｒＣａｓｈ”、”ＣｙｂｅｒＣｏｉｎ”等が挙げられる。

【０００６】

【発明が解決しようとする課題】しかしながら、”ＢｉｔＣａｓｈ”等の従来の課金サーバを利用した情報伝送システムでは、課金サーバ側でクライアント側の認証を行うことができる場合もあるが、多くの場合、サービスを提供する側であるコンテンツサーバ側には、クライアント側の情報が送信されないため、コンテンツサーバ側でクライアント側の認証を行うのが困難であった。このため、コンテンツサーバ側では、セキュリティ対策を厳重にする必要があった。

【０００７】また、上記の従来の課金サーバで実際に取り引きされているデータとしては、静止画像やソフトのダウンロード等の比較的データの小さな蓄積型データが多く、このようなデータのサービスをクライアント側から要求された場合には、該データを課金サーバを介してクライアント側に送信するのが一般的であるが、サービスの対象となるデータが、映像等のストリーム型データであった場合、課金サーバを経由したデータ伝送を行うと、課金サーバのネットワーク的な負荷が大きいという問題がある。

【０００８】そこで、本発明は、上記の欠点を除去するために成されたもので、サービス対象の情報がストリーム型データであっても、クライアント側に対するサービスの提供を効率的に且つ安全に行うことが可能な、課金装置、情報伝送システム、課金方法、及びそれを実施するための処理ステップをコンピュータが読出可能に格納した記憶媒体を提供することを目的とする。

【０００９】

【課題を解決するための手段】斯かる目的下において、本発明では例えば、課金サーバでクライアントが対価を払うと、その情報が課金サーバからサービス提供サーバ（撮像装置にて得られた映像や音声を提供するカメラサーバ等のコンテンツサーバ）に送信され、その情報を基にコンテンツサーバ側では、チケット（接続用チケット）が発行され、課金サーバを介しクライアントへ送信される。クライアントは、この接続用チケットでサービス提供サーバに接続を行う。これにより、クライアントが要求したサービス（映像や音声等の情報）が、課金サーバを経由することはない。また、接続用チケットに対して、クライアントが接続可能な時間情報（映像や音声を視聴できる時間等）、チケット番号、及びクライアントを識別するためのパスワード等を埋め込むことにより、クライアントの匿名性を維持した状態で、クライアント認証を行うことができる。

【００１０】すなわち、第１の発明は、クライアントからのサービス要求に基づいて、サーバが該クライアントに提供したサービスに対して課金を行う課金装置であって、上記クライアントに関する所定情報を記憶する記憶手段と、上記クライアントからの、上記サーバへサービス要求を送信する際に用いるチケットの購買要求を受け付ける購買要求受付手段と、上記購買要求受付手段にて受け付けられた要求の正当性を、上記記憶手段の情報に基づいて判定する判定手段と、上記判定手段での判定結果に基づいて、上記チケットの発行を上記サーバに要求するチケット要求手段と、上記判定手段での判定結果に基づいて、上記クライアントが受けるサービスに対する課金を行う課金手段と、上記チケット要求手段での要求により上記サーバから返送されてきたチケットを、上記クライアントに送信する送信手段とを備えることを特徴とする。

【００１１】第２の発明は、上記第１の発明において、上記サービスは、上記サーバにて取得された音声情報、映像情報、及び該映像を得る際の撮影動作制御権の少なくとも何れかを含むことを特徴とする。

【００１２】第３の発明は、上記第１の発明において、上記チケットの情報は、上記サーバにて生成された上記クライアントを識別するための情報、上記クライアントが上記サーバからサービスを受けることが可能な時間情報、及び上記サーバにて生成された電子署名情報の少なくとも何れかを含むことを特徴とする。

【００１３】第４の発明は、上記第１の発明において、上記チケットの情報は、上記サーバにて所定の暗号化方式で暗号化された情報であることを特徴とする。

【００１４】第５の発明は、任意のクライアントから要求されたサービスに対応する情報を、該クライアントへ送信するサービス提供サーバと、上記クライアントに提供されたサービスに対して課金を行う課金サーバとが、上記クライアントと共に同一ネットワーク上に接続されてなる情報伝送システムであって、上記課金サーバは、請求項１～４の何れかに記載の課金装置の機能を有することを特徴とする。

【００１５】第６の発明は、任意のクライアントから要求されたサービスに対応する情報を、該クライアントへ送信するサービス提供サーバと、上記クライアントが上記サービス提供サーバから受けたサービスに対して課金を行う課金サーバとが、上記クライアントと共に同一ネットワーク上に接続されてなる情報伝送システムであっ

て、上記クライアントは、上記サービス提供サーバへサービス要求を送信する際に用いるチケットの購買要求を上記課金サーバへ送信する手段と、該チケット購買要求により上記課金サーバから返送されてきたチケットを用いて上記サービス提供サーバへサービス要求を送信する手段とを含み、上記課金サーバは、上記クライアントに関する情報を記憶する手段と、該記憶情報に基づいて上記クライアントからのチケット購買要求の正当性を判定する手段と、該判定結果に基づいてチケットの発行要求を上記サービス提供サーバへ送信する手段と、上記判定結果に基づいて上記クライアントが受けるサービスに対する決済処理を行う手段と、上記チケット発行要求により上記サービス提供サーバから返送されてきたチケットを上記クライアントへ送信する手段とを含み、上記サービス提供サーバは、上記課金サーバからのチケット発行要求に基づいてチケットを生成する手段と、該チケットの情報を記憶する手段と、該チケットを上記課金サーバへ送信する手段と、上記クライアントからのサービス要求を受け付ける手段と、上記サービス要求の正当性を上記記憶情報から判定する手段と、該判定結果に基づいて上記サービス要求に基づいた情報を上記クライアントへ送信する手段とを含むことを特徴とする。

【００１６】第７の発明は、上記第６の発明において、上記サービスは、音声情報、映像情報、及び該映像を得る際の撮影動作制御権の少なくとも何れかを含み、上記サービス提供サーバは、上記サービス要求元のクライアントが、上記サービスを受ける権利を有するか否かを判定する手段を含むことを特徴とする。

【００１７】第８の発明は、上記第６の発明において、上記サービス提供サーバでの上記チケットを生成する手段は、上記クライアントを識別するための情報、及び上記クライアントがサービスを受けることが可能な時間情報の少なくとも何れかの情報を含めたチケットを生成することを特徴とする。

【００１８】第９の発明は、上記第６の発明において、上記サービス提供サーバにおいて、上記チケットを生成する手段は、所定の暗号化方式によってチケットを生成し、上記サービス要求を受け付ける手段は、該サービス要求に用いられた上記チケットを復号化し、上記サービス要求の正当性を判定する手段は、その判定を、上記復号化されたチケットにより行うことを特徴とする。

【００１９】第１０の発明は、上記第６の発明において、上記サービス提供サーバにおいて、上記チケットを生成する手段は、所定の電子署名を含むチケットを生成し、上記サービス要求の正当性を判定する手段は、その判定を、上記サービス要求に用いられた上記チケット中の電子署名によって行うことを特徴とする。

【００２０】第１１の発明は、クライアントがサービス提供サーバへサービス要求を送信することで、クライアントがサービス提供サーバから受けるサービスに対する課金を、課金サーバにて行うための課金方法であって、上記クライアントが、上記サービス提供サーバへサービス要求を送信する際に用いるチケットの購買要求を上記課金サーバへ送信するステップと、上記課金サーバが、予め記憶した上記クライアントに関する情報に基づいて、上記クライアントからのチケット購買要求の正当性を判定し、該判定結果に基づいて、チケットの発行要求を上記サービス提供サーバへ送信すると共に、上記クライアントが受けるサービスに対する決済処理を行うステップと、上記サービス提供サーバが、上記課金サーバからのチケット発行要求に基づいて、チケットを生成して、該チケットの情報を記憶すると共に、該チケットを上記課金サーバへ送信するステップと、上記課金サーバが、上記チケット発行要求により、上記サービス提供サーバから返送されてきたチケットを上記クライアントへ送信するステップと、上記クライアントが、上記チケット購買要求により、上記課金サーバから返送されてきたチケットを用いて上記サービス提供サーバへサービス要求を送信するステップと、上記サービス提供サーバが、上記クライアントからのサービス要求を受け付けけ、上記サービス要求の正当性を上記チケットの記憶情報から判定し、該判定結果に基づいて、上記サービス要求に基づいた情報を上記クライアントへ送信するステップとを含むことを特徴とする。

【００２１】第１２の発明は、上記第１１の発明において、上記サービスは、音声情報、映像情報、及び該映像を得る際の撮影動作制御権の少なくとも何れかを含み、上記サービス提供サーバが、上記サービス要求元のクライアントが上記サービスを受ける権利を有するか否かを判定するステップを含むことを特徴とする。

【００２２】第１３の発明は、上記第１１の発明において、上記サービス提供サーバが、上記チケットを、上記クライアントを識別するための情報、及び上記クライアントがサービスを受けることが可能な時間情報の少なくとも何れかの情報を含めて生成するステップを含むことを特徴とする。

【００２３】第１４の発明は、上記第１１の発明において、上記サービス提供サーバが、所定の暗号化方式によって上記チケットを生成し、上記クライアントからのサービス要求を受信した場合には、該サービス要求に用いられた上記チケットを復号化し、該サービス要求の正当性を、上記復号化されたチケットにより行うステップを含むことを特徴とする。

【００２４】第１５の発明は、上記第１１の発明において、上記サービス提供サーバが、所定の電子署名を含む上記チケットを生成し、上記クライアントからのサービス要求を受信した場合には、該サービス要求に用いられた上記チケットの正当性を、上記チケット中の電子署名によって行うステップを含むことを特徴とする。

【００２５】第１６の発明は、請求項１１～１５の何れ

かに記載の課金方法を、コンピュータが読み出し可能に格納した記憶媒体であることを特徴とする。

【００２６】

【発明の実施の形態】以下、本発明の実施の形態について図面を用いて説明する。

【００２７】（第１の実施の形態）本発明は、例えば、図１に示すような情報伝送システム１００に適用される。この情報伝送システム１００は、料金を支払ったクライアント側のみが映像のサービスを受けることが可能なシステムであり、上記図１に示すように、映像のサービスを提供するカメラサーバ１１０と、映像のサービスを要求するクライアント１３０と、クライアント１３０が要求したサービスに対して課金処理を行う課金サーバ１２０とが、インターネット等のコンピュータネットワーク上にそれぞれ接続され相互通信可能なように構成されている。尚、上記図１では、説明の簡単のためにそれぞれが１つのカメラサーバ１１０及びクライアント１３０を示しているが、それぞれが複数存在するものとしてもよい。

【００２８】カメラサーバ１１０は、課金サーバ１２０からのチケット発行要求に基づいた後述するチケットの発行を行うと共に、クライアント１３０からの映像のサービス要求に基づいた映像を取得してその映像をクライアント１３０に対して送信する。このため、カメラサーバ１１０は、被写体を撮影して得た映像情報をディジタル化するカメラ装置１１１と、カメラ装置１１１で得られた映像情報を取得する映像取得部１１３と、映像取得部１１３で得られた映像情報をネットワークを介してクライアント１３０に対して送信する映像送信部１１４と、発行したチケットの情報を蓄積するための接続チケット登録用のデータベース（ＤＢ）１１５と、課金サーバ１２０から送信されるチケット発行依頼を受け付けるチケット発行依頼受付部１１６と、チケット発行依頼受付部１１６で受け付けられたチケット発行依頼に基づいてチケットの発行を行うと共に、そのチケット情報を接続チケット登録用ＤＢ１１５に蓄積（登録）するチケット発行部１１７と、チケット発行部１１７で発行されたチケットを課金サーバ１２０に対して送信するチケット送信部１１８と、クライアント１３０からの後述する接続用チケットを用いた映像のサービス要求を受け付ける映像要求受付部１１９と、映像要求受付部１１９で受け付けられたサービス要求を接続チケット登録用ＤＢ１１５のチケット情報を元に確認するチケット判定部１１２とを含んでなる。尚、カメラ装置１１１は、撮影して得られた映像情報をディジタル化する機構を内蔵した一体型カメラ装置であってもよいし、上記のディジタル化する機構を別ボードの形態で備えるものであってもよい。

【００２９】課金サーバ１２０は、クライアント１３０からのチケット購買要求により、それに基づいた情報をカメラサーバ１１０に対して送信し、そのカメラサーバ１１０から返信されるチケットを接続用チケットとしてクライアント１３０に対して送信する。このため、課金サーバ１２０は、課金用の秘密情報等を蓄積するためのデータベース（ＤＢ）１２１と、クライアント１３０からのチケットの購買要求（詳細は後述するが、買う商品やサービス内容や課金情報等の情報を含む要求）を受け付ける購買受付部１２２と、購買受付部１２２で受け付けられた購買要求の正当性を課金情報ＤＢ１２１の情報を基に判定する課金情報判定部１２３と、課金情報判定部１２３の判定結果に基づいてカメラサーバ１１０へチケットの発行依頼を要求するチケット発行依頼送信部１２４と、カメラサーバ１１０で発行されたチケットを受信するチケット受信部１２５と、チケット受信部１２５で受信されたチケットを接続用チケットとしてクライアント１３０に対して送信するチケット送信部１２６とを含んでなる。

【００３０】クライアント１３０は、課金サーバ１２０にチケットの購入を要求するチケット購入要求部１３１と、課金サーバ１２０からの接続用チケットを受信するチケット受信部１３２と、チケット受信部１３２で受信された接続用チケットを用いて映像のサービスをカメラサーバ１１０へ要求する映像要求部１３３と、カメラサーバ１１０からの映像を受信すると共に画面表示等する映像受信部１３４を含んでなる。

【００３１】上述のような映像伝送システム１００の全体の動作は、図２に示すフローチャートに従った動作となる。

【００３２】ステップＳ２０１：クライアント１３０は、課金サーバ１２０に対して、チケットの購買要求（カメラサーバ１１０で得られた映像の視聴のための要求）を行う。このときの要求情報には、後述する課金情報（以下、「決済情報」とも言う）と、希望する映像の情報（カメラサーバ名や映像ストリーム名等）、及びそのカメラサーバとの希望する接続時間の情報等を含む。

【００３３】ステップＳ２０２：課金サーバ１２０は、クライアント１３０からの要求の決済情報が正当なものであった場合に、カメラサーバ１１０に対してチケット発行の要求を行う。

【００３４】ステップＳ２０３：カメラサーバ１１０は、課金サーバ１２０からの要求により、チケットを発行して、それを接続チケット登録用ＤＢ１１５へ登録すると共に、課金サーバ１２０へ返送する。課金サーバ１２０は、カメラサーバ１１０から返送されてきたチケットを接続用チケットとしてクライアント１３０に対して送信する。

【００３５】ステップＳ２０４：クライアント１３０は、課金サーバ１２０からの接続用チケットを用いて、カメラサーバ１１０に対する映像のサービスを要求（接続要求）する。

【００３６】ステップＳ２０５：カメラサーバ１１０

は、クライアント１３０からの要求により、それに用いられた接続用チケットの内容を、接続チケット登録用ＤＢ１１５へ先に登録したチケットの内容で確認し、正しい要求であった場合に、その要求に従った映像を取得して、それをクライアント１３０に対して送信する。

【００３７】ステップＳ２０６：クライアント１３０は、カメラサーバ１１０からの映像を受信して、それを画面表示等する。

【００３８】ここで、図３は、クライアント１３０に着目した場合の動作を示したものであり、図４は、課金サーバ１２０に着目した場合の動作を示したものであり、図５（ａ）及び（ｂ）は、カメラサーバ１１０に着目した場合の動作を示したものである。以下、それぞれの動作について具体的に説明する。

【００３９】（１）クライアント１３０における処理（上記図３参照）

ステップＳ３０１：チケット購買要求部１３１は、課金サーバ１２０に対して、チケット購買の要求（視聴要求）を行う。この要求には、決済情報、カメラサーバ名や映像ストリーム名、及び接続時間が含まれる。ここで、決済情報とは、電子マネーやプリペイドカード方式のカード情報等であり、オンライン少額決済を行うサイトが指定する情報（暗号やパスワード等）を指す。具体的には例えば、図６に示すような情報である。

ステップＳ３０２：クライアント１３０は、ステップＳ３０１でのチケット購買の要求後、チケット受信部１３２での課金サーバ１２０からのチケット受信待ち状態に入る。

ステップＳ３０３～ステップＳ３０５：チケット受信部１３２が課金サーバ１２０からの接続用チケットを受信すると（ステップＳ３０３）、映像要求部１３３は、その接続用チケットの情報を用いて、カメラサーバ１１０に対して映像のサービスを要求する（ステップＳ３０４）。その後、クライアント１３０は、映像受信部１３４でのカメラサーバ１１０からの映像の受信待ち状態に入る。　ステップＳ３０６：映像受信部１３４は、カメラサーバ１１０からの映像を受信すると、それを画面表示等する。

【００４０】（２）課金サーバ１２０における処理（上記図４参照）

ステップＳ４０１：購買受付部１２２は、クライアント１３０からのチケット購買要求（上記図３：ステップＳ３０１参照）を受け付ける。

ステップＳ４０２：課金情報判定部１２３は、購買受付部１２２で受け付けられた要求に含まれる決済情報（課金情報）を、課金情報ＤＢ１２１に蓄積されている情報を用いて確認する。

ステップＳ４０３：そして、課金情報判定部１２３は、ステップＳ４０２での確認の結果、クライアント１３０からの要求が正当なものであるか否かを判別する。この判別の結果、正しい要求であった場合にのみ次のステップＳ４０４からの処理に進み、そうでない場合には該要求を無視する。

ステップＳ４０４～ステップＳ４０６：クライアント１３０からの要求（決済情報）が正しい場合、課金情報判定部１２３は、実際に決済処理を行って（ステップＳ４０４）、カメラサーバ１１０に対してチケットの発行を要求する（ステップＳ４０５）。この要求には、クライアント１３０からの要求に含まれるカメラサーバ名や映像ストリーム名、及び接続時間等の情報も含む。その後、課金サーバ１２０は、チケット受信部１２５でのカメラサーバ１１０からのチケット受信待ち状態に入る（ステップＳ４０６）。

ステップＳ４０７：チケット受信部１２５がカメラサーバ１１０からのチケットを受信すると、チケット送信部１２６は、そのチケットを接続用チケットとしてクライアント１３０に対して送信する。

【００４１】（３－１）カメラサーバ１１０におけるチケット発行処理（上記図５（ａ）参照）

ステップＳ５０１：チケット発行依頼部１１６は、課金サーバ１２０からのチケット発行の要求（上記図４：ステップＳ４０５参照）を受け付ける。

ステップＳ５０２：チケット発行部１１７は、チケット発行依頼部１１６で受け付けられた要求に基づいて、チケットを発行し、それを接続チケット登録用ＤＢ１１５へ登録する。このチケット上の情報としては、課金サーバ１２０からのチケット発行の要求に含まれるカメラサーバ名や映像ストリーム名、及び接続時間等を含むと共に、チケット番号、チケット発行時間、パスワード等の秘密情報も含む。具体的には例えば、図７に示すような情報とする。

ステップＳ５０３：チケット送信部１１８は、チケット発行部１１７で発行されたチケットを接続用チケットとして、課金サーバ１２０に対して送信する。

【００４２】（３－２）カメラサーバ１１０における映像提供処理（上記図５（ｂ）参照）

ステップＳ５０４：映像要求受付部１１９は、クライアント１３０からの映像のサービス要求（上記図３：ステップＳ３０４参照）を受け付ける。

ステップＳ５０５：チケット判定部１１２は、映像要求受付部１１９で受け付けられた要求に使用されている接続用チケットの記載事項の正当性の判定を、接続チケット登録用ＤＢ１１５に登録されている情報を参照することで行う。ここで判定を行う事項としては、例えば、カメラサーバ名及び映像ストリーム名、現時刻が接続可能時間内か否か、チケット番号、パスワードが正しいか否かについての事項とする。

ステップＳ５０６：ステップＳ５０５での判定の結果、上記の要求に用いられた接続用チケットが正当なものであった場合に次のステップＳ５０７の処理を実行し、そ

うでない場合には該要求を無視する。

ステップＳ５０７：クライアント１３０からの要求が正当なものであった場合、映像送信部１１４は、映像取得部１１３で取得された映像を、クライアント１３０に対して送信する。

【００４３】尚、カメラサーバ１１０は、ステップＳ５０１～Ｓ５０３を繰り返し処理するスレッド（上記図５（ａ）の処理）と、ステップＳ５０４～Ｓ５０７を繰り返し処理するスレッド（上記図５（ｂ）の処理）との２つのスレッドから構成された処理を実行するようになされており、これらは接続チケット登録用ＤＢ１１５を仲介して協調動作するようになされている。

【００４４】上述のように、本実施の形態では、カメラサーバ１１０がサービス要求のあったクライアント１３０に対して該サービスを提供する場合、サービスを受けるための接続用チケットをカメラサーバ１１０が発行し、その接続用チケットを用いてクライアント１３０がカメラサーバ１１０に対してサービス要求（映像のダウンロード等）し、その接続用チケットのサービスに対して課金サーバ１３０で課金を行うように構成した。これにより、サービス対象のデータが映像ストリームのようなストリーム情報であっても、該データを課金サーバ１３０を介さずに、すなわち課金サーバ１３０にネットワーク的な負荷をかけることなく、クライアント１３０が受けるサービスに対して課金を行うことができる。また、課金サーバ１３０とは別に、カメラサーバ１１０（サービスの提供側）で認証機構を持つことにより、すなわち接続用チケットをカメラサーバ１１０で発行し、その認証情報をカメラサーバ１１０で管理するように構成したことにより、クライアント１３０のカード番号等のプライベートな情報を、カメラサーバ１１０に知られることなく、課金を行うことができる。これは、クライアント１３０の匿名性をカメラサーバ１１０に対して保つことができるだけでなく、カメラサーバ１１０にとっても、セキュリティ対策を厳重にする手間も省け、運用が非常に容易になるという長所も存在する。

【００４５】尚、上述の実施の形態では、独自の課金サーバ１２０を設ける構成としたが、課金サーバ１２０を、例えば、同等の機能を有する既存の課金インフラストラクチャ（ＢｉｔＣａｓｈ杜の”ＢｉｔＣａｓｈ”や、サイバーキャッシュ社の”ＣｙｂｅｒＣａｓｈ”、”ＣｙｂｅｒＣｏｉｎ”等）で代用してもかまわない。

【００４６】また、カメラサーバ１１０、クライアント１３０、及び課金サーバ１２０間の通信にて、ＳＳＬ等の暗号化を行うようにすることで、セキュリティレベルをさらに上げることも可能である。

【００４７】また、カメラサーバ１１０にてチケットを発行する際（上記図５（ａ）：ステップＳ５０２参照）、該チケットにパスワードを書き込むようにした

が、このパスワードとしては、例えば、固定のパスワードでもよいし、一接続毎に作成されるワンタイムパスワードでもよい。ワンタイムパスワードの場合には、上記ステップＳ５０２での処理中に、パスワード作成処理を追加する。一方、セキュリティのレベルがそれほど求められない場合には、パスワードを用いないようにしてもよい。

【００４８】また、カメラサーバ１１０にてチケットを発行する際（上記図５（ａ）：ステップＳ５０２参照）、例えば、チケット自体の電子署名を該チケットに付け加えるようにしてもよい。これにより、送信先のクライアント１３０やその他のチケットを不正に入手した者による改竄の有無の確認が行えるため、安全性をより高めることが可能となる。この場合、上記ステップＳ５０２の処理中に、電子署名を作成する処理と電子署名をチケットに書き込む処理を追加すると共に、上記図５（ｂ）のステップＳ５０５の処理中においても、チケット内の電子署名確認処理を追加する。

【００４９】また、課金サーバ１２０にてチケット発行要求依頼を行う際（上記図４：ステップＳ４０５参照）、例えば、そのデータ自体に電子署名を付け加えるようにしてもよい。これにより、第三者による不正なチケット発行依頼要求の防止や、改竄を防止することが可能となり、課金サーバ１２０とカメラーサーバ１１０間のセキュリティをより高めることが可能となる。この場合、予め課金サーバ１２０側において、課金サーバ１２０の公開鍵（非対称鍵暗号方式の公開鍵等）を生成しておき、その公開鍵をカメラサーバ１１０に登録しておく。また、上記ステップＳ４０５の処理中に、電子署名を作成及び送信する処理を追加すると共に、上記図５（ａ）のステップＳ５０１の処理中においても、電子署名の確認を行う処理を追加する。

【００５０】（第２の実施の形態）本実施の形態では、上記図１の情報伝送システム１００において、映像受信権、音声受信権、及びカメラ制御権等のサービスをも提供し、これに対して課金を行う。

【００５１】例えば、情報伝送システム１００は、キヤノン株式会社の”ＷｅｂＶｉｅｗ”のように、クライアント１３０からカメラ制御コマンドがカメラサーバ１１０へ送られ、カメラ装置１１１のズーム、パン、及びチルト等の操作が可能となる機能と、音声を取り込む機能とを有する。また、カメラサーバ１１０が提供するサービスとしては、映像受信権、音声受信権、及びカメラ制御権の３つとする。

【００５２】上述のような、情報伝送システム１００が、サービス内容や機能が複数あるシステムの場合、接続用チケットにこれらのサービス及び機能毎に異なる属性値を持たせる。具体的には、映像受信権と音声受信権を選択した場合の属性値を”Ａ”、映像受信権とカメラ制御権を選択した場合の属性値を”Ｂ”、映像受信権と

音声受信権とカメラ制御権の全てを選択した場合の属性値を”Ｃ”とする。尚、接続用チケットに持たせる情報としては、サービスの組み合わせを示す、”Ａ”、”Ｂ”、及び”Ｃ”等の属性値に限らず、サービスの組み合わせを直接接続用チケットに持たせるようにしてもよい。例えば「サービス内容：カメラ制御のみ」、「サービス内容：音声＋カメラ制御」などのような情報を、直接接続用チケットに書き込む。

【００５３】このため、上記図５（ａ）及び（ｂ）に示したカメラサーバ１１０での処理において、ステップＳ５０２の処理中に、上記属性値を接続チケットに書き込む処理を追加する。また、ステップＳ５０５の中に、映像送信時でチケット確認を行う際に属性値も合わせて確認する処理を追加する。さらに、ステップＳ５０７の処理中に、属性値によって配信するサービスを決定する処理を追加する。このとき、予め定められた所定の属性値を有するチケットの送信元（クライアント）を優先するようにしてもよい。

【００５４】また、クライアント１３０が課金サーバ１２０に対してチケット購買要求を発行する際に、希望するサービスを選択してもらい、この選択情報がカメラサーバ１１０へチケット発行要求と共に伝えられることで、上記のサービスの区別がなされる。

【００５５】上述のように、本実施の形態では、接続用チケットに属性や優先権を持たせ、それを基にカメラサーバ１１０にてクライアント１３０のサービス内容の区別を行うようにした。これにより、上述した第１の実施の形態での効果に加えて、サービスの差別化を図ることが可能となる、という効果も得ることができる。

【００５６】尚、本発明の目的は、上述した各実施の形態のホスト及び端末の機能を実現するソフトウェアのプログラムコードを記憶した記憶媒体を、システム或いは装置に供給し、そのシステム或いは装置のコンピュータ（又はＣＰＵやＭＰＵ）が記憶媒体に格納されたプログラムコードを読みだして実行することによっても、達成されることは言うまでもない。　この場合、記憶媒体から読み出されたプログラムコード自体が各実施の形態の機能を実現することとなり、そのプログラムコードを記憶した記憶媒体は本発明を構成することとなる。プログラムコードを供給するための記憶媒体としては、ＲＯＭ、フロッピーディスク、ハードディスク、光ディスク、光磁気ディスク、ＣＤ－ＲＯＭ、ＣＤ－Ｒ、磁気テープ、不揮発性のメモリカード等を用いることができる。また、コンピュータが読みだしたプログラムコードを実行することにより、各実施の形態の機能が実現されるだけでなく、そのプログラムコードの指示に基づき、コンピュータ上で稼動しているＯＳ等が実際の処理の一部又は全部を行い、その処理によって各実施の形態の機能が実現される場合も含まれることは言うまでもない。さらに、記憶媒体から読み出されたプログラムコードが、コンピュータに挿入された拡張機能ボードやコンピュータに接続された機能拡張ユニットに備わるメモリに書き込まれた後、そのプログラムコードの指示に基づき、その機能拡張ボードや機能拡張ユニットに備わるＣＰＵなどが実際の処理の一部又は全部を行い、その処理によって各実施の形態の機能が実現される場合も含まれることは言うまでもない。

【００５７】

【発明の効果】以上説明したように本発明では、クライアントがサービス提供サーバからサービス（撮像装置で得られた映像や音声等を提供するサービス）を受ける際には、先ず、クライアントが課金サーバにチケット購買を要求する。課金サーバは、予めデータベース等に記憶しているクライアントの情報（クライアントのクレジット番号等の課金用秘密情報）を参照して、チケット購買要求を送信したクライアントを確認し、正しいクライアントであったならば、決済処理を行うと共に、チケット発行の要求をサービス提供サーバへ送信する。サービス提供サーバは、課金サーバからのチケット発行要求に基づいて、チケット（接続用チケット）を生成し、それを課金サーバへ返送すると共に、その情報をデータベース等に記憶する。課金サーバは、サービス提供サーバから返送されてきたチケットをクライアントへ送信する。したがって、クライアントは、課金サーバから返送されてきたチケットを用いて、サービス提供サーバと接続してサービス要求を送信する。これを受けたサービス提供サーバは、クライアントがサービス要求の際に使用したチケットの正当性を、先にデータベース等に記憶した情報を参照することで確認し、正しいことを確認した場合に、クライアントへサービスを提供する。このように構成したことにより、サービス提供サーバが提供するサービスが、動画や音声等のストリーム情報であっても、該情報が課金サーバを介さずに、すなわち課金サーバにネットワーク的な負荷をかけることなく、クライアントが受けるサービスに対して課金を行うことができる。

【００５８】また、課金サーバとは別に、サービス提供サーバ側で認証機構を持つことにより、すなわちチケット発行をサービス提供サーバ側で発行し、その認証情報をサービス提供サーバ側で管理することにより、クライアントのクレジットカード番号等のプライベートな情報（課金用秘密情報）を、サービス提供サーバ側に知られることなく、クライアントが受けるサービスに対して課金を行うことができる。これは、クライアントの匿名性をサービス提供サーバ側に対して保つことができるだけでなく、サービス提供サーバ側にとってもセキュリティ対策を厳重にする手間も省け、運用が非常に容易になるという長所も存在する。

【００５９】さらに、サービス提供サーバが提供するサービスが、複数のサービスである場合、例えば、映像情報、音声情報、及び撮影動作制御権（サービス提供サー

バが撮像装置をネットワークでつながれた遠隔地から操作することを可能とする機構を有する場合等の、該撮像装置の制御権）というようなサービスである場合、チケットに対して、それら複数のサービスの組み合わせ又は全ての属性をつけることにより、サービスの差別化をはかることもできる。

【００６０】よって、本発明によれば、サービス対象の情報がストリーム型データであっても、クライアント側に対するサービスの提供を効率的に且つ安全に行うことができる。

【図面の簡単な説明】

【図１】第１の実施の形態において、本発明を適用した情報伝送システムの構成を示すブロック図である。

【図２】上記情報伝送システムの全体動作を説明するためのフローチャートである。

【図３】上記情報伝送システムのクライアントの動作を説明するためのフローチャートである。

【図４】上記情報伝送システムの課金サーバの動作を説明するためのフローチャートである。

【図５】上記情報伝送システムのカメラサーバの動作を説明するためのフローチャートである。

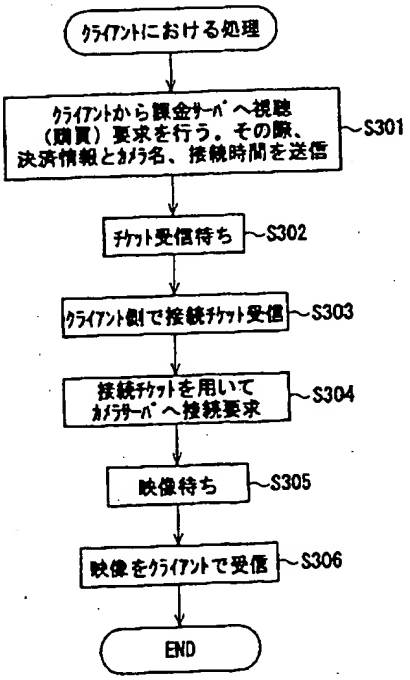
【図６】上記クライアントから上記課金サーバへ送られる要求中の課金情報（決済情報）を説明するための図である。

【図７】上記課金サーバからの要求により、上記カメラサーバにて発行される接続用チケット上の情報を説明するための図である。

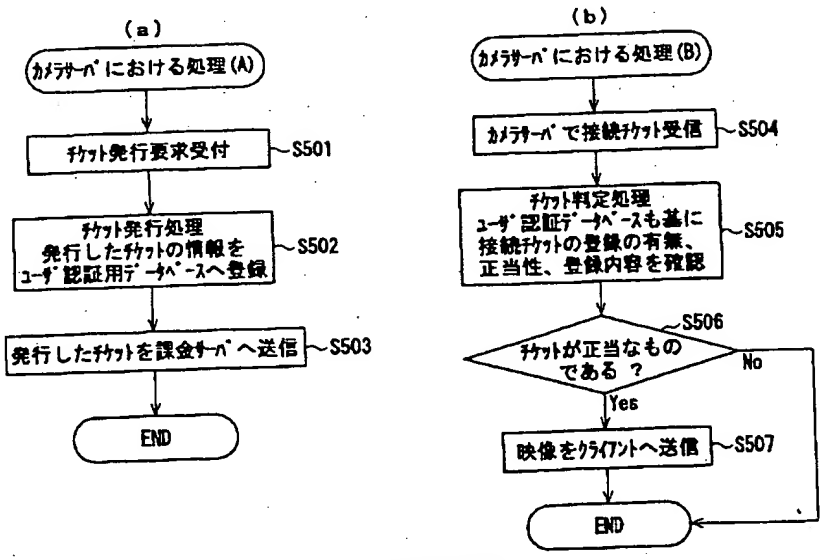
【符号の説明】

１００　情報伝送システム
１１０　カメラサーバ
１１１　カメラ装置
１１２　チケット判定部
１１３　映像取得部
１１４　映像送信部
１１５　接続チケット登録用データベース
１１６　チケット発行依頼受付部
１１７　チケット発行部
１１８　チケット送信部
１１９　映像要求受付部
１２０　課金サーバ
１２１　課金情報データベース
１２２　購買受付部
１２３　課金情報判定部
１２４　チケット発行依頼送信部
１２５　チケット受信部
１２６　チケット送信部
１３０　クライアント
１３１　チケット購買要求部
１３２　チケット受信部
１３３　映像要求部
１３４　映像受信部

【図３】

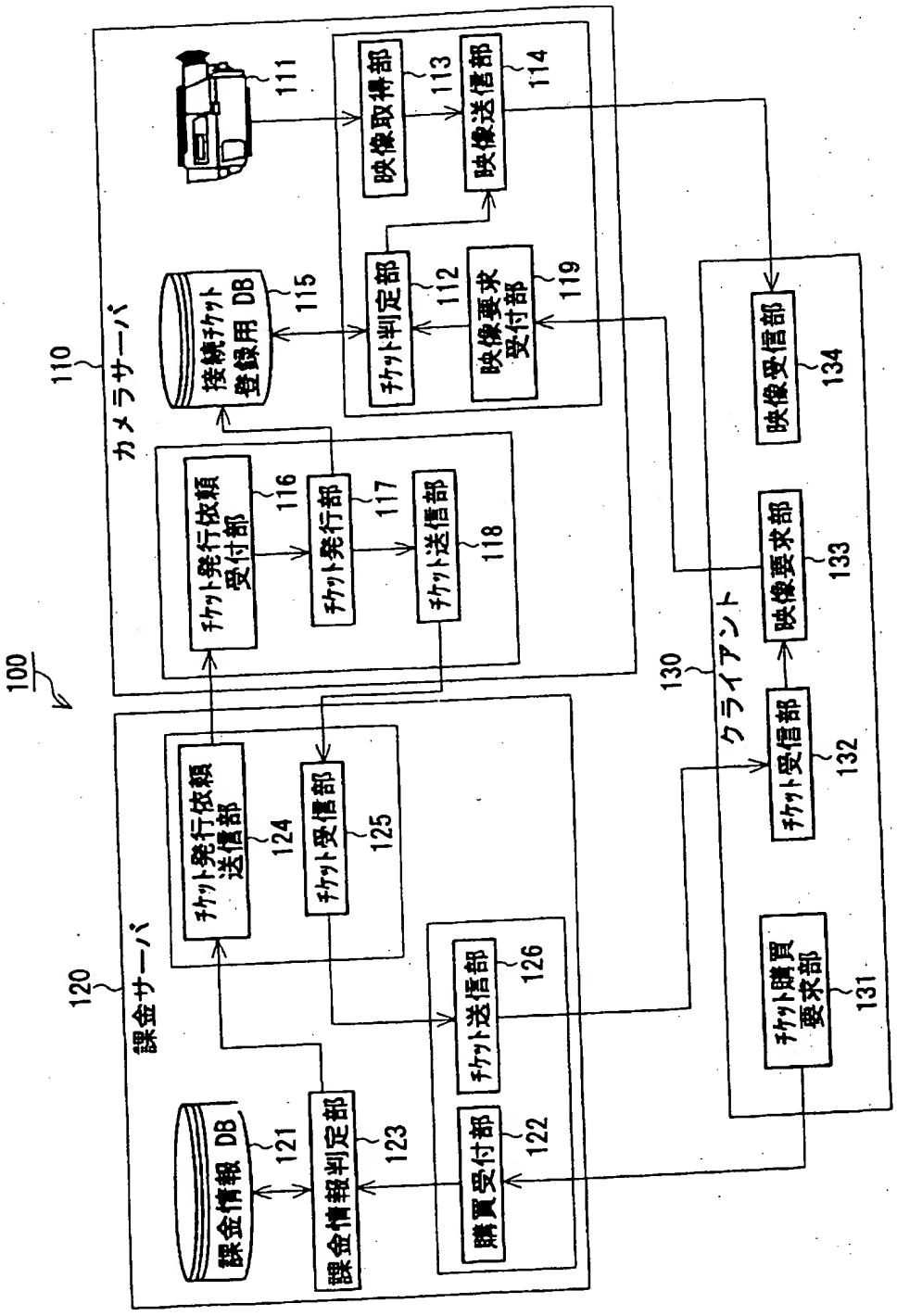


【図５】

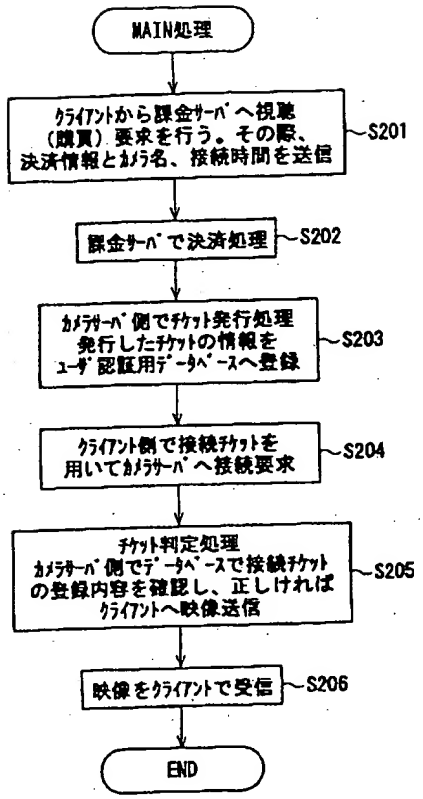


カメラサーバにおける処理

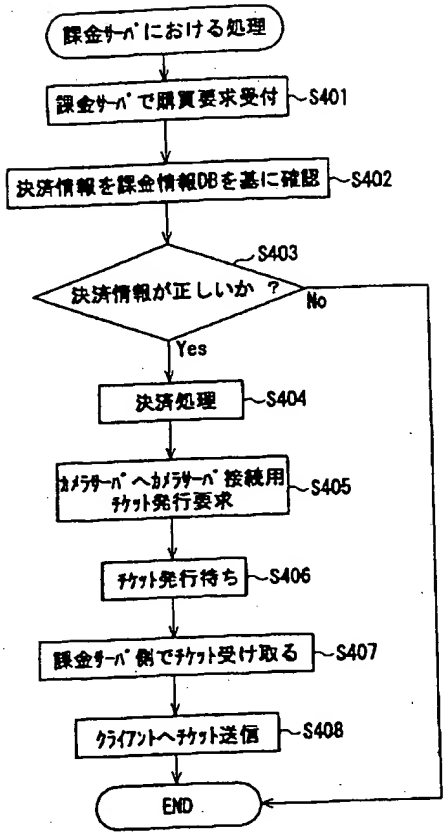
【図１】


100
110
カメラサーバ
111
映像取得部
113
映像送信部
114
接続チケット登録用 DB
115
チケット判定部
112
映像要求受付部
119
チケット発行依頼受付部
116
チケット発行部
117
チケット送信部
118
120
課金サーバ
チケット発行依頼送信部
124
チケット受信部
125
課金情報 DB
121
課金情報判定部
123
チケット送信部
126
購買受付部
122
130
クライアント
映像受信部
134
映像要求部
133
チケット受信部
132
チケット購買要求部
131

【図２】



【図４】



【図６】

視聴要求映像名　　:flute.xpc.canon.co.jp:65318:camera1
視聴希望時間　　:10(Minutes)
課金情報（課金暗号）:あいうえ　かきくけ　さしすせ　なにぬね

【図７】

ｶﾒﾗｻｰﾊﾞ名　　:elcamino.xpc.canon.co.jp
映像ｽﾄﾘｰﾑ名　　:flute.xpc.canon.co.jp:65318:camera1
接続可能時間　　:1998／1／28.14:33:30-1998／1／28.14:43:30
ﾁｹｯﾄ番号　　:3a6d4555473d6c5b4
ﾁｹｯﾄ発行時刻　　:1998／1／28.14:33:30
秘密情報（ﾊﾟｽﾜｰﾄﾞ）:@3a6d4555473d6c5b46503e423d664d
613965386f655d59695b5040343a3261

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